THE SONORA MISSIONS

BOOK ONE

SAN JOSE DE TUMARCACORI
SAN ANTONIO DE OQUITOA
SAN XAVIER DEL BAC
SAN FRANCISCO XAVIER DE MAGDALENA
NUESTRA SONORA DE LA CONCEPCION DEL CABORCA
SAN DIEGO DEL PITIQUITO
SAN FRANCISCO DEL ATIL
GUEVAVI
NUESTRA SENORA DE LOS DOLORES ARISPE

ARCHITECTURE OF THE SONORA MISSIONS
Sonora Expedition - Oct. 12-29,1935

Report

by

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FOREWORD

The material for this report was secured on a trip made under the auspices of the National Park Service from October 12 to October 29, 1935. The report was written immediately after the expedition returned to headquarters.

Very few copies of the report were made at that time and the information contained therein was not generally available. With the erection of the proposed museum at Tumacacori National Monument during 1937, it is thought that interest in the old Spanish Missions will be stimulated sufficiently to warrant the issuance of a limited number of copies of this report in the present form.

The work of mimeographing, reproducing of photographs, coloring of plates, and binding has been done by workers made available by the Works Progress Administration, District 8, Project #4285.

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PHOTOGRAPHS, OUTLINE DESCRIPTION, AND DRAWINGS

San Jose de Tumacacori (Arizona)

San Ignacio de Caborica

Nuestra Senora Guadalupe de Cocospera

Santa Maria Magdalena

San Antonio de Oquitoa

San Francisco de Atil

Nuestra Senora de la Concepcion del Caborca

San Diego del Pitiquito

San Juan del Bisanig (San Valentin)

Santa Teresa

San Pedro y San Pablo de Tubutama

Los Santos Reyes de Cucurpe

Guevavi (Arizona)

San Xavier del Bac (Arizona)

INTRODUCTION

The problems of stabilization, reconstruction and restoration together with proposals for a museum and exhibits at Tumacacori National Monument have produced many questions involving the architecture and history of this famous Monument. The answers to many of the questions are to be found in a study of the missions established by Padre Eusebio Francisco Kino, which for the most part lie in Sonora, Mexico.

The purpose of the Sonora expedition was to make a preliminary survey of these missions, securing architectural and historical data which will aid the architects and museum technicians in the solution of these problems.

Members of the expedition were Howard Tovrea, Chief Engineering Aide and Robert Rose, Park Naturalist both from the Southwestern Monuments Headquarters; George Grant, official photographer of the National Park Service; Arthur Woodward, Associate Laboratory Technician and Leffler Miller Associate Architect from the Field Division of Education; Scofield DeLong, Associate Architect representing the Branch of Plans and Design, and in charge of party.

Permission to pass into Mexico with two government cars and the necessary cameras and equipment was secured from the Chief of Customs at Nogales, Sonora, thru the offices of the American Con-

sul. We proceeded directly to Hermosillo, the capital of Sonora, where we contacted the Secretary of the Governor, securing there an official permit to carry on our Mission Studies. This procedure proved very necessary and successful in aiding us in our work, The Mexican officials were most courteous.

Our entrance into Sonora preceded but a few hours an uprising in this area during which a few well aimed rebel shots deprived us of the privilege of meeting several of the town officials, and caused us to remain at the Hotel Ramos in Hermosillo longer than we had planned. We were, however, well protected since the Governor and his bodyguard were stopping here, which allowed us to sleep peacefully behind thick walls while machine gun artists stomped quietly past our doors all night long.

The uprising having degenerated into a game of hide and seek between the soldiers and rebels, with a side line of horse borrowing, we proceeded to carry on our studies of all the importent mission sites. These studies were necessarily brief and consisted of taking photographs, making as many architectural drawings and sketches as time would permit and taking notes on the construction and detail.

These missions were established by the Jesuit Padre Kino between 1687 and 1711 and operated by the Jesuits until their expulsion from Mexico, however, the churches as they stand today are in general Franciscan structures or Franciscan reconstruction of Jesuit structures.

The architectural drawings included in this report are com-

piled from the note-books of Leffler Miller and Scofield DeLong, Howard Tovrea's contributions along this same line having been incorporated for the most part in his report on Tumacacori, submitted January 15, 1936. These drawings are representative of the different types of mission planning, construction, detail, ornament and furnishings, but are not all necessarily accurate, as many sites had to be covered in a comparatively short time, thus precluding the possibilities of too much accuracy. The architectural photographs herein were taken by Leffler Miller, the numerous excellent photographs by George Grant being on file in Washington, D. C. Arthur Woodward's ability as an archaeologost and interpreter proved invaluable to the party. Robert Rose, having visited most of the Sonora Missions sites in 1934 with Dr. Carl Russell, contributed much toward the success of the expedition.

MATERIALS AND CONSTRUCTION

The materials used in erecting the missions were those available near the mission sites. Stone of varying degrees of durability and quality are found thru-out Sonora, the stones employed in the building being for the most part small and easily handled. In the construction of San Xavier in Arizona, however, stone had to be transported many miles from the nearest mountains, the Indian women carrying these stones on their heads the entire distance, no stone being allowed to touch the ground until the mission site was reached.

Clay used in the making of burned brick is readily obtainable thru-out the area. The bricks are soft but durable and a dull red in color. The sizes and shapes vary, some at Caborca measuring 8" x 8" x 1-1/4" for the vaulted ceiling construction, and 8" x 10" x 2-1/2" for pier and wall construction, while others at Oquitoa measure 6" x 12" x 1-3/4".

Adobe, a material widely used in the south-west, played a very important part in mission construction. The idea of using abobe bricks was imported to Mexico from Spain where it had been used as a building material since the advent of the Moors. These sun-dried bricks were made in varying sizes, from 2" to 4" thick and from 12" to 18" long. Straw, twigs and stone particles were used as a bond and provided a material quite durable when properly protected.

Wood was employed for roofs beams, lintels, doors, and furniture. Mesquite and pine were mostly used, mesquite being the

most common in Sonora. The vigas (beams) found in most of the missions had been adzed square but in some cases as at Oquitoa, round logs had been used along with the squared beams.

Window and door openings are commonly spanned with wood lintels. These members are plastered over, first being scored to allow the plaster to hold. In the older structures the window consisted of a wood frame in which vertical wood bars were placed to form a wood grille. Behind the wood grille, solid wood shutters swing on wood pins. An excellent example of this type of window was found in the old adobe wall of Cocospera. Only the frame remained, but the window is easily reconstructed from this as illustrated in the detail drawings of Cocospera.

Doors were of two types, the simpler type being built of wood planks on wood frame, the more elaborate doors being panelled. The older doors are pivoted, wood pins or pivots at the top and bottom being inserted in round holes provided in the head and sill of the door frame. Doors were also found which hung on iron pins inserted in the side of the opening. More elaborate hardware consisted of iron hinges and locks is provided for some of the later doors.

Wood choir loft rails, for the most part were found to have wood balusters turned on a lathe. Probably some of these early types were made on primitive lathes, operated by neophytes. At Tubutama is seen the oldest rail consisting of heavy hand carved balusters undoubtedly the work of the Indian.

Saguaro cactus ribs, cane and ocatilla, also had a part to

play in the mission construction. Similar to small round poles, they were laid over the vigas and in every case at a right angle to the vigas, to form the furnished ceiling.

Structural systems used were of two types, the post and lintel, and the arch and pier. A third structural system -- the truss, does not appear in the Sonora Missions. Although a pitched roof with wood rafters is to be found at Cocospera, no attempt was made to construct a real truss.

Little is known of the construction of the first temporary quarters at the mission sites. They may have been similar to those erected in California which were little better than brush huts, more liveable quarters later being constructed of wood posts set closely together and plastered inside and out with clay, and roofed with poles, grass and mud.

Adobe brick construction was taken up as a more permanent type of construction. The bricks when dried were laid up in mud mortar. The thickness of the mud joints varies in present ruined buildings from 6" as found at Santa Teresa to 1" used at Oquitoa.

Adobe brick walls were necessarily heavy due to the poor bearing value of the adobe. The minimum thickness as a rule was about 3 feet. The early adobe walls were finished inside and out with a thin hard adobe mud plaster and given a heavy coat of whitewash.

Mud plaster offered but a temporary protection to the adobe, so a type of cement mortar was developed to be applied on the exterior walls. The best protection for the adobe was given when burned bricks became available. The bricks were used as a facing

carried up the exterior walls to the top of the parapet where a molded brick cornice was constructed. These walls were always finished with stucco and given a coat of whitewash.

At Caborca is found the most durable construction. The walls here are of cemented stone and brick masonry, the facing both inside and out being of burned brick. The walls have been as usual finished outside with stucco and inside with lime plaster.

The planning of the churches was necessarily influenced by the materials to be used in their construction. Where vigas were employed to support the roof, the Nave was quite narrow since timbers of any great length were not easily obtainable. Corbels were often introduced at the ends of the vigas for reinforcing. This type of construction was used in the earlier and less pretentious structures.

Cocospera offers an unusual type of roof and ceiling construction. Three adobe arches springing from heavy adobe piers span the Nave. Mesquite beams are supported between these arches and are placed so as to form a rather flat barrel vault. Small poles placed closely together between the beams are held in place by notches in the beams and form laths upon which a gypsum plaster is applied. A pitched roof is constructed of wood rafters spanned by small poles lashed to the rafters with rawhide. Burned clay roof tiles laid in a cement mortar and supported on the small poles complete the roof. This is the only mission in the Sonora chain using the mission -- tile roof.

Vault construction is used in the larger missions. An example of a barrel vault ceiling is found in San Ignacio. Here.

the Nave is spanned by a simple brick vault springing from the adobe walls. Piers supporting a transverse arch are placed half way down the Nave probably with the idea of relieving the thrust from the heavy roof. Brick faced adobe walls and relieving piers proved incapable of supporting the heavy ceiling so we find the seemingly hurried construction of a massive buttress on either side of the Naive sufficient to relieve both the thrust from the vault and any doubts the builders might have had that the building would stand. A more successful barrel vault construction is seen in Pitiquito and the use of barrel vault as well as groined vault ceilings is common in the minor rooms of other missions.

Domes are characteristic of the more pretentious churches. They are of several types and always constructed of a single shell of brick. The dome over the crossing is usually built upon an octagonal drum rising from pendentives. Window openings are placed in the drums. Caborca offers splendid opportunities to study several varieties of dome construction ranging from the very flat type to the hemispherical type.

The architects of the missions were usually the padres themselves, who as a rule conceived the work and directed the Indians in the erection of the buildings. In the case of Caborca and San Xavier it is evident that trained architects were employed, and probably the same architect in both cases since the features thruout these two churches are so similar.

Although architecture did not constitute part of the padres training, a love for the edifices of Spain and New Spain was carried

with them to the mission outposts. Building in the fashion of their native country they erected the finest structures circumstances would permit.

The primitive qualities of a pioneer country are interwoven with a conscious expression of the styles of the native land. The results constitute an architecture frank, simple and unrestrained but fast fading under the hand of time.

DEVELOPMENT OF MISSION ARCHITECTURE

For a proper study of mission architecture in the Southwest, one must necessarily turn to Mexico. Here the architecture is fashioned after that of the mother country, Spain, although all the architectural features of the Mexican Churches are not directly traceable to Europe. It is necessary, however, to first consider the architecture of Spain and briefly trace its development into the style which was later transplanted into Mexico.

From early times the Iberian Peninsula had been under the domination of conquering peoples from the East. The Iberians were conquered first by the Romans, then the Visi-Goths and in turn by the Moors, who were finally subjugated by the combined forces from the north. The influence of these various peoples combined to give to Spain a cosmopolitan architecture not found in other European countries.

Roman culture and influences form the basis upon which the Spanish civilization was built. Excellent builders, the Romans contributed the arch pier systems of construction, the use of cemented masonry walls, and the classic details and decoration. The Visi-Goths had little to contribute toward the architecture.

The Moors who dominated the country for almost eight hundred years had a particularly far reaching influence upon the arts and architecture. More decorators than constructors, their buildings were profusely ornamented with little thought given to expressing the structural elements. Decorations were lavishly used in the interiors, but the exterior walls were left plain except around the

entrance and window openings. The use of stucco wall finishes was common with the Moors. With them also came the introduction of domes and arches of Byzantine influence, with decorative motifs derived from the Persians and Syrians.

With the coming of Christian victories in the north of Spain, Romanesque architecture was introduced from France, but later gave way to the Gothic style. Thus two great styles in the north flourished while the Moorish style continued in the south.

Architecture received a new impetus after Spanish victories over the Moors. Gothic structures under Moorish influences developed into the Gothic-Moresque, a fanciful and florid style retraining something of the structural balance of the Gothic. The discovery of the new world and the final over-throw of the Moors brought Spain into a dominant position. The Renaissance style was introduced during this prosperous period, and developed with the Gothic-Moresque to produce a style known as the Plateresque and characterized by broad surface decorations particularly about the door and window openings, elaborated pilasters and broken pediments and entablatures. The Plateresque style was followed closely by the Baroque (a classic revival) and later by the Churrigueresque (from the architect Churriguera).

The Baroque style dominated from the later 16th century and through the 17th century, while the 18th century enjoyed the dominance of both the Baroque and the Churrigueresque. Both styles are characterized by the interruption of straight lines, breaking of entablatures and pediments, the ornamentation of panels.

The Baroque style is characterized by the use of restrained [illegible] [illegible] [illegible] [illegible]

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[illegible] [illegible] [illegible] [illegible] columns which may be twisted or storied, while the panels are undecorated and the profiles preserve their regularity.

The Churrigueresque is characterized by: highly decorated pilasters, lines infinitesmally broken, all panels decorated, and sculpture becoming an integral part of the structure.

These two styles often merge into each other and frequently show the influences of other styles in varying degrees.

This briefly outlines the cosmopolitan architecture introduced into Mexico by the conquering Spaniards. The earliest Spanish buildings in Mexico faithfully followed the styles of the Native Land. The influence of the Aztec, however, soon became apparent in carrying on construction with Indian artisans and the early structures bear their impress.

As in the colonial work of other countries, the architecture in Mexico, while basically that of the mother country, took on an individual character suited to new conditions. This Spanish-Colonial style was organic in character and rich in detail. Strong contrasts between plain and decorated surfaces were displayed, the portions ornamented being; the facade, side entrances, towers above the roof and the domes. The design and execution of the ornament was often entrusted to native hands and consequently not too well developed nor refined but free from restraint.

Domes were an important feature of Mexican architecture. Built with a single shell, the domes were often covered with glazed tiles of blue, yellow, black and gold and surmonted by a lantern.

Vaulted ceilings were almost invariably used except earliest structures erected solely for utility and defense. The stone or

brick vaulting was plastered and either decorated or plain. The prevailing color was white and the older decoration in bands, and center pieces painted in dull reds, blues and yellows with an abundance of black used for outlining.

The Spanish-Colonial in Mexico followed the changes of style which took place in Spain, the Pateressue, the Baroque and the Churrigueresque each holding forth but lagging in time the development of these styles in Spain.

While the prosperity of the new country was expressed in these magnificent Monuments, the churches established to the north received little official attention. The padres in charge at the Sonoran Missions managed to express in a few of the churches, something of the splendor of these elaborate structures, as at Caborca, Cocospera and Tubutama. These churches might be called a provincial variety of the Spanish-Colonial of Mexico.

The main architectural features of the important Franciscan Missions in Sonora may be listed as follows:

1. Solid, Massive Walls and Buttresses.
2. Arcaded Corridors, Arches supported on Piers, as at
   Caborca, Pitiquito.
3. Decorated Area about Entrance, Fantastic Pedimented Gables,
   as at Tubutama, Caborca, Cocospera, Oquitoa.
4. Belfries.
   (a) Two Storied Towers, as at
   San Ignacio, Magdalena, Caborca, Tubutama.

(b) Single Story Tower, as at:

Cocospera.

(c) Wall Type, as at:

Oquitoa, Atil (now destroyed)

5. Domes, as at:

San Ignacio, Magdalena, Pitiquito, Caborca, Tubutama.

6. Roofs.

(a) Barrel Vault, at

San Igancio, Pitiquito.

(b) Flat Dome, as at:

Caborca, Tubutama.

(c) Flat (wood beams) as at:

Oquitoa.

7. Large Areas of Undecorated Wall Surface, as at:

All Missions.

8. Patio or Partially Enclosed Garden Area, as traceable at:

Caborca, Pitiquito, Cocospera, San Ignacio.

Solid, massive walls are characteristic of all the mission structures. This feature results from the necessity of building heavy walls of adobe for strength, stability and defense, and from the desire to erect austere and noble edifices. Buttresses were introduced in many of the missions to strengthen the long high walls and to react against the thrust from vaulted roofs and domes above.

Arcades are directly traceable to Spain. In the home land the series of arches are supported on columns. In the Sonora

Missions the use of adobe and small stones together with the lack of skilled workmen dictated the use of simple square piers in place of columns.

The decorated area about the entrance is for the most part the only elaboration displayed on the exterior of the missions. This elaboration is expressed in varying degrees, from the boldly conceived motif framing the entrance doors at San Ignacio to the broader treatment of the area between the two towers on the facade of Caborca. The fantastic and pedimented gables reflect this feature used on the more elaborate structures in the south.

The bell towers in Sonora Missions are usually two stories, with circular headed openings piercing the walls in which the bells are hung. The towers are plain, surmounted by a dome and crowned with a lantern. The lower floor of the tower at the roof level is either of wood, as at San Ignacio, or masonry supported by a vault as at Caborca. One example of a single story bell tower is at Cocospera and is constructed similar to the two storied towers. A simpler form of belfry is the wall type which is merely a continuation of the wall above the roof, having pierced openings in which the bells are hung. This type is seen at Oquitoa.

Domes are a characteristic feature of the churches in Sonora. Of Byzantine and Moorish influence, they lend something of the Mediterranean atmosphere noticeable in many of the Mexican towns. The domes are generally constructed upon an octagonal drum which is pierced with small window openings to allow light to enter. At Pitiquito the drum is not used, the dome here being supported directly

upon pendentives. Domes are usually placed over the crossing, but in the case of San Ignacio, it rises over the Sanctuary. The shape of the domes generally is hemispherical, but an egg-shaped dome is used in Pitiquito. The interior of the domes and drums were often painted with the crude but highly interesting designs by native artisans. Tubutama still retains these decorative paintings now somewhat faded. Domes with tile surfaced exteriors were out of the question in Sonora and the builders were content to whitewash them although at San Xavier the dome was painted to imitate tile.

Barrel vault and flat dome roofs are used in the more pretentious missions. A brick interior cornice or molding is placed at or below the spring line of the valt or dome and exterior parapet walls of brick, finished with a molded brick cornice, carry above the roof in every case. Flat roofs are used in the simpler structures, wood beams or vigas supporting this roof. Carved wood corbels often introduced are of Indian workmanship. Under the choir loft at Cocospera were found carved wood corbels which had been given a coat of plaster, but this practice is unusual in the use of wood corbels. Simple brick parapet walls with a brick cornice were also used with the flat roof.

A common feature of all the Sonora Missions is the large areas of undecorated wall surface. This characteristic, of Moorish ancestry, proved extremely practical in the mission construction of Sonora, due to the employment of unskilled native workmen. Any exterior elaboration was confined to decoration about the entrance and tends further to illustrate the influence derived from the mother country.

A Spanish feature introduced by the Moors is the patio or enclosed area which was well adapted to the mission layout, considering the circumstances under which the churches operated. This feature was formed by the outlying buildings, walls and arcades adjoining the church and examples of the feature are partially intact, or at least traceable, at Caborca, Pitiguito, San Ignacio and Cocospera.

The interior character of the missions varies from a severely plain treatment to a highly ornate and colorful handling. The interiors of most of the churches have been whitewashed and much of the colorful decorations consequently covered over. Tubutama offers the most in the way of elaborate plaster decoration and retains many of the early colorful designs painted by the neophytes. Cocospera too is colorful but the plaster decorations tend more toward the native crudeness in execution. San Ignacio's Baptistry still holds the stencil-like painted ornament so characteristic of the painted decoration in Sonora.

Thus we see that the Sonora Missions more closely reflect the spirit of the Spanish-Colonial architecture developed in Mexico than any other chain of missions established in the north. They, however, display the massive and primitive features which are justly and worthily expressed in an outpost of a new civilization.

SUMMARY AND RECOMMENDATIONS

The characteristic features, materials, construction and details of the Sonora Missions, as they relate to Tumacacori, have been established. Sufficient material has been compiled to warrant definite architectural reconstruction. There is also enough data to allow the museum technicians to carry on the architectural portion of the proposed museum exhibits relating to the Franciscan structure.

Walter G. Attwell, Associate Engineer, National Park Service, in his report "Proposed Ruins Stabilization, Mission San Jose de Tumacacori," May 1935, has thoroughly outlined the stabilization problems. The work of this character already done by Frank Pinkley Superintendent of Southwestern Monuments is highly valuable but further stabilization, as outlined above, is much needed.

It is here recommended that any work of restoration be kept to a minimum. With the architectural data in this report and with the mission photographs by George Grant, any further work can readily follow the character of related work in the existing Sonora Missions.

The floors throughout Tumacacori should be restored using burned brick laid in pattern, so common in the other Franciscan structures of this region. With proper study of old photographs and existing conditions at the mission, it might be possible to restore the choir loft.

The outlying buildings at Tumacacori could be reconstructed with some degree of accuracy as to the character of the buildings of this period, but any attempt at authentic restoration would not

be successful with the small amount of data available after the excavations of 1934.

In the report "San Jose de Tumacacori," by J. H. Tovrea, January 1936, recommendation is made that detailed measured drawings of Tumacacori be made, recording the restored portions of the mission and adjoining structures. Recommendation is also made that the existing painted designs be recorded in detail. These records are of vital importance as Mr. Tovera points out and should be made as soon as possible.

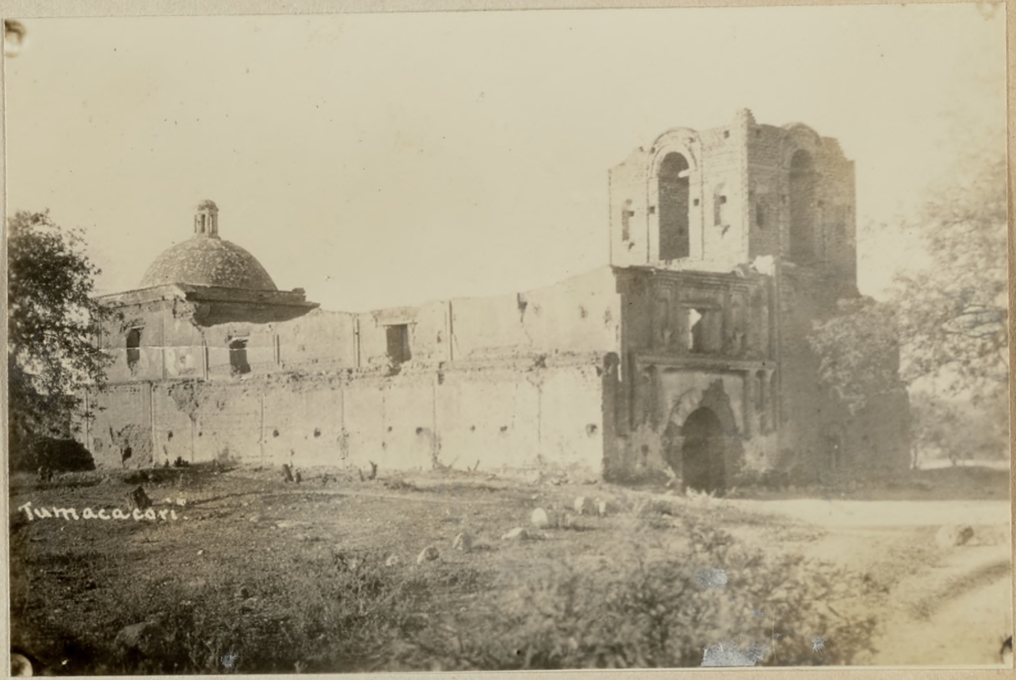
Architectural studies in Sonora of a more accurate nature would prove profitable but are not deemed necessary at this time. As the Architectural work connected with Tumacacori progresses, any further data that might be found essential and not covered in this report could readily be obtained in Sonora by one or two men familiar with these missions.

No authentic information regarding the first early structures erected at the mission sites has been obtained. Data on these structures together with details of the processes and methods employed in the erection of Jesuit Churches might be obtained at the Museo Nacional in the City of Mexico, where plans, pictures and Spanish documents are available for study.

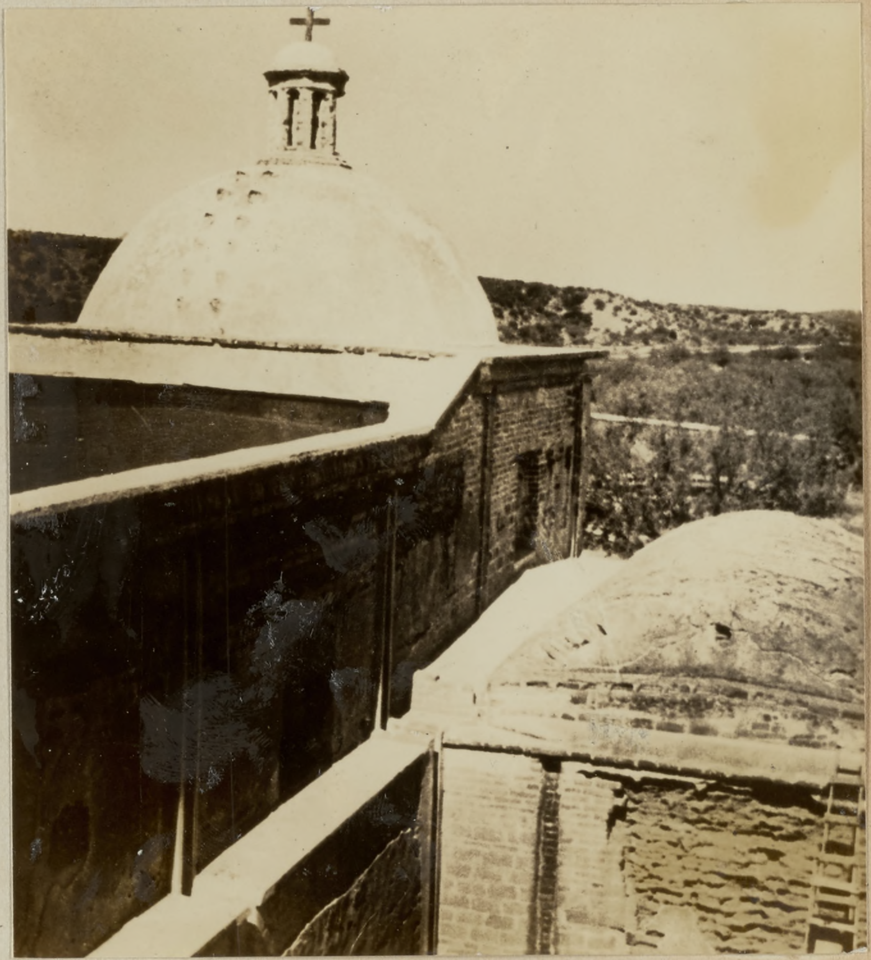
Published works relating to the architectural features of the Mexican Missions will be found useful to architects and museum technicians. The "Architect and Engineer" published in San Francisco contains articles in the July, September, and December issues of 1921 by Prentice Duell entitled "The Arizona-Sonora Chain of Missions." By the same author is the book "Mission Architecture"

which contains more detailed descriptions of the Sonora Missions. "Spanish-Colonial Architecture in Mexico" by Sylvester Baxter offers splendid data concerning the architectural influence and styles in Mexico.

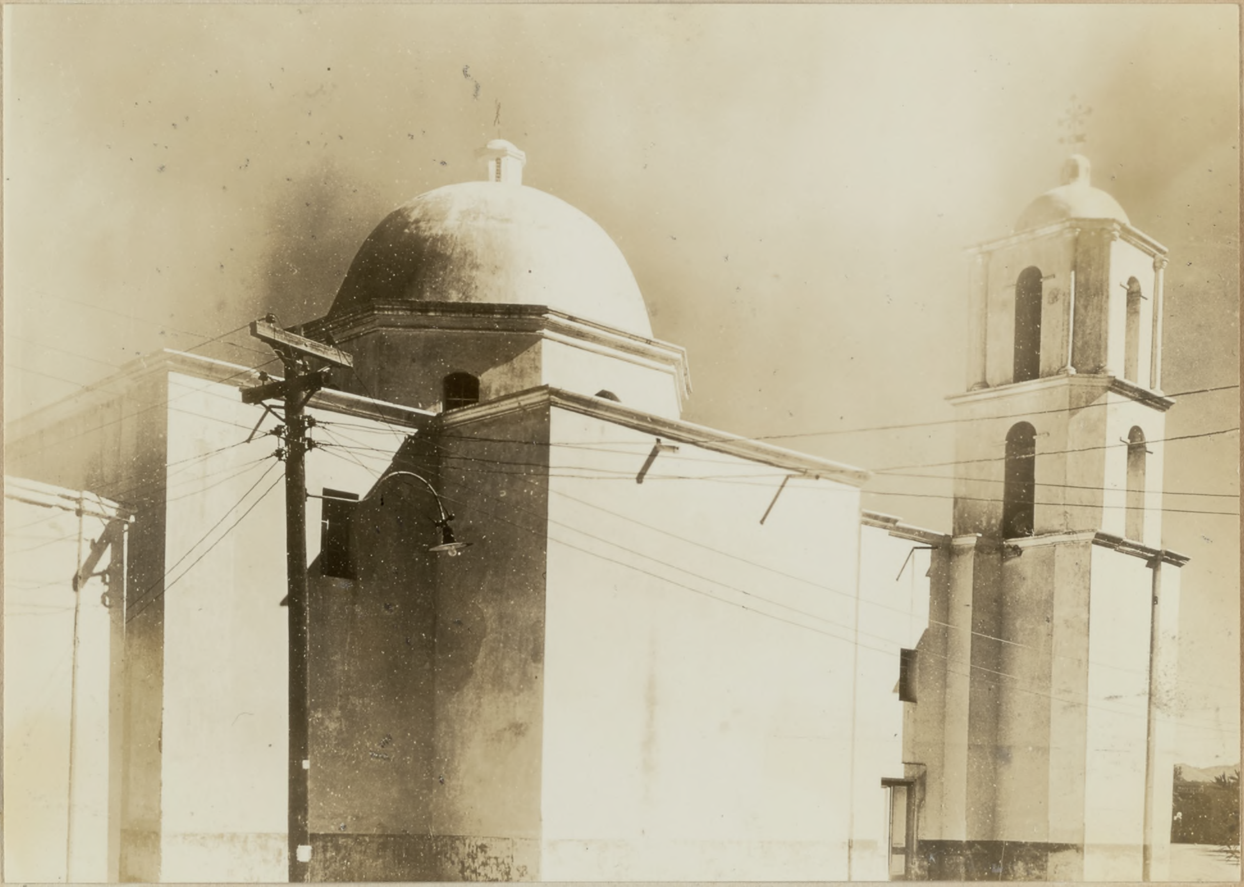
SAN JOSE DE TUMACACORI



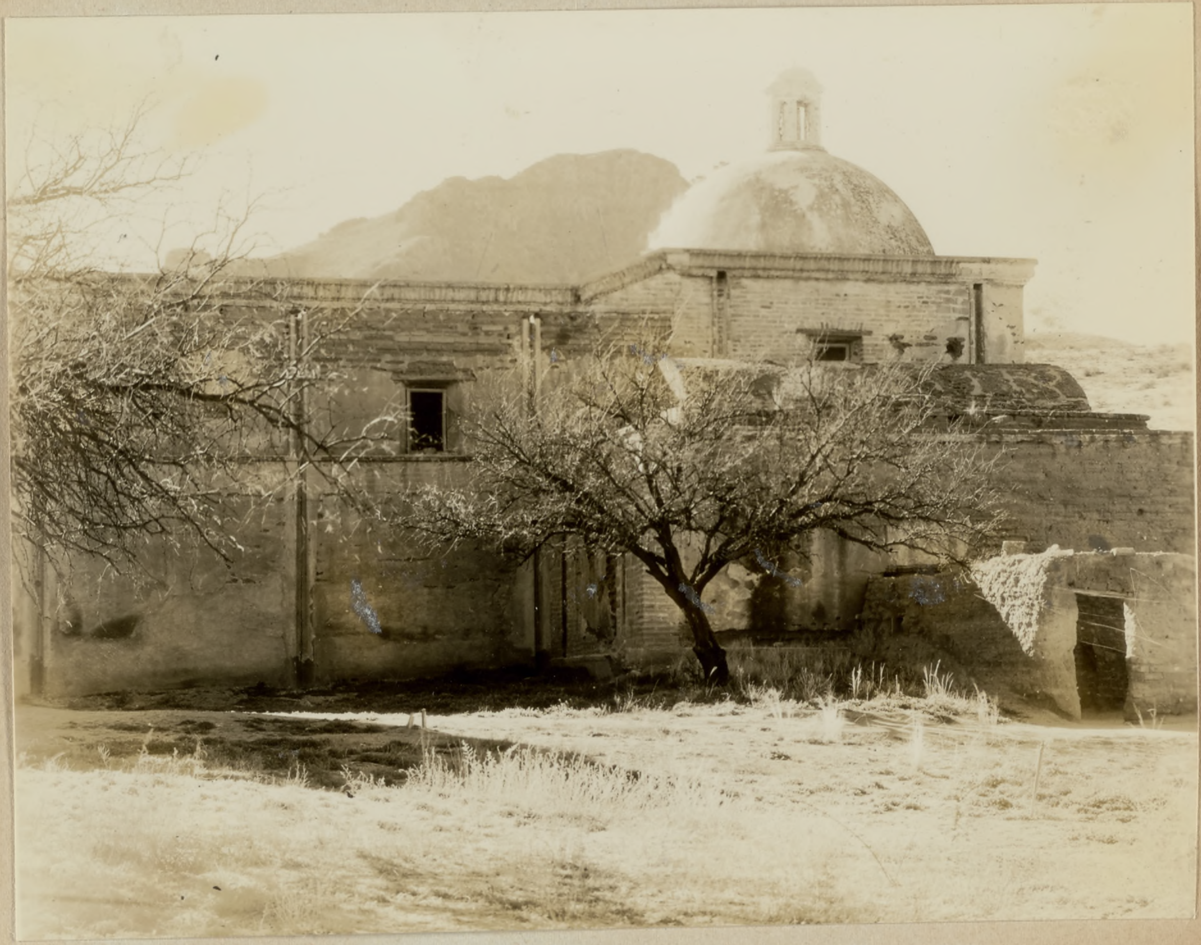
4985 **TUMACACORI.** Facade of
Church. View from Southwest.
about 1880.



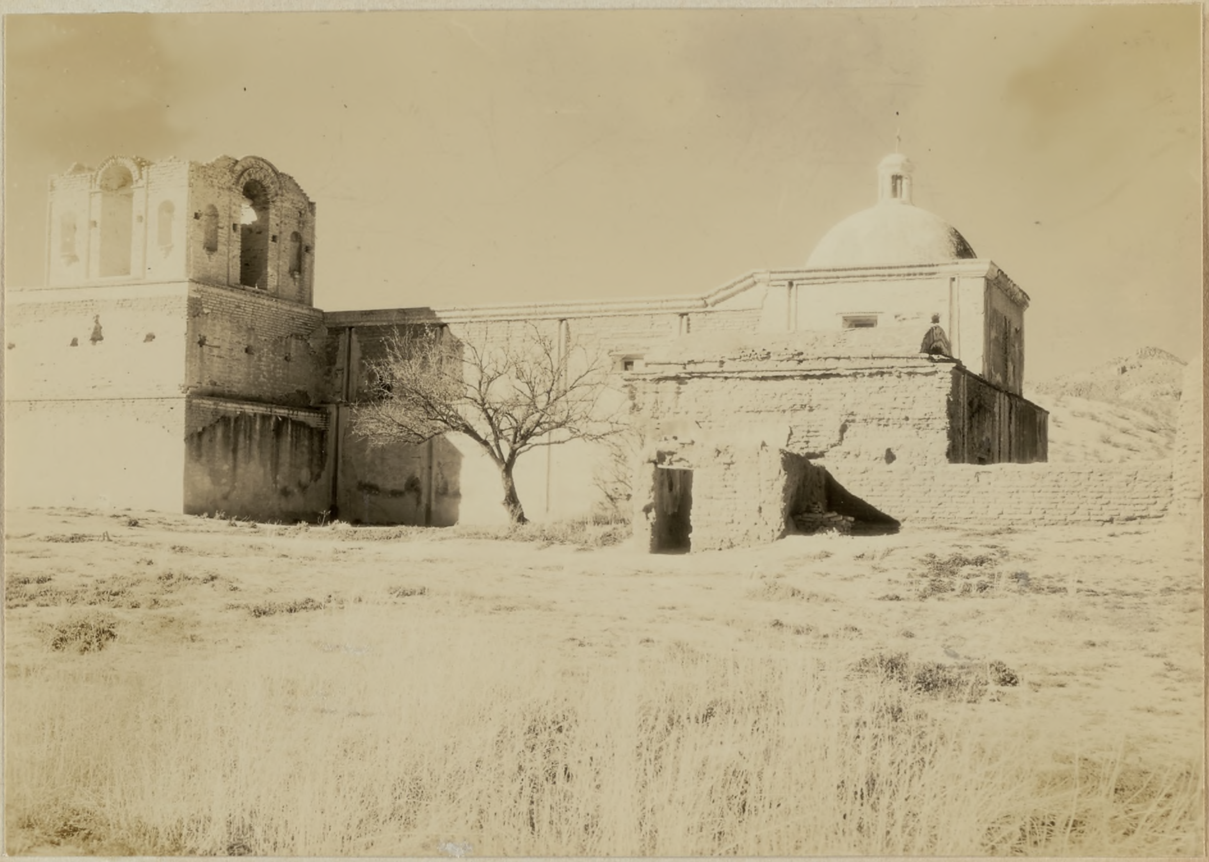
5281 Tumacacori. The dome and the barrel vault are well illustrated in our own Monument.



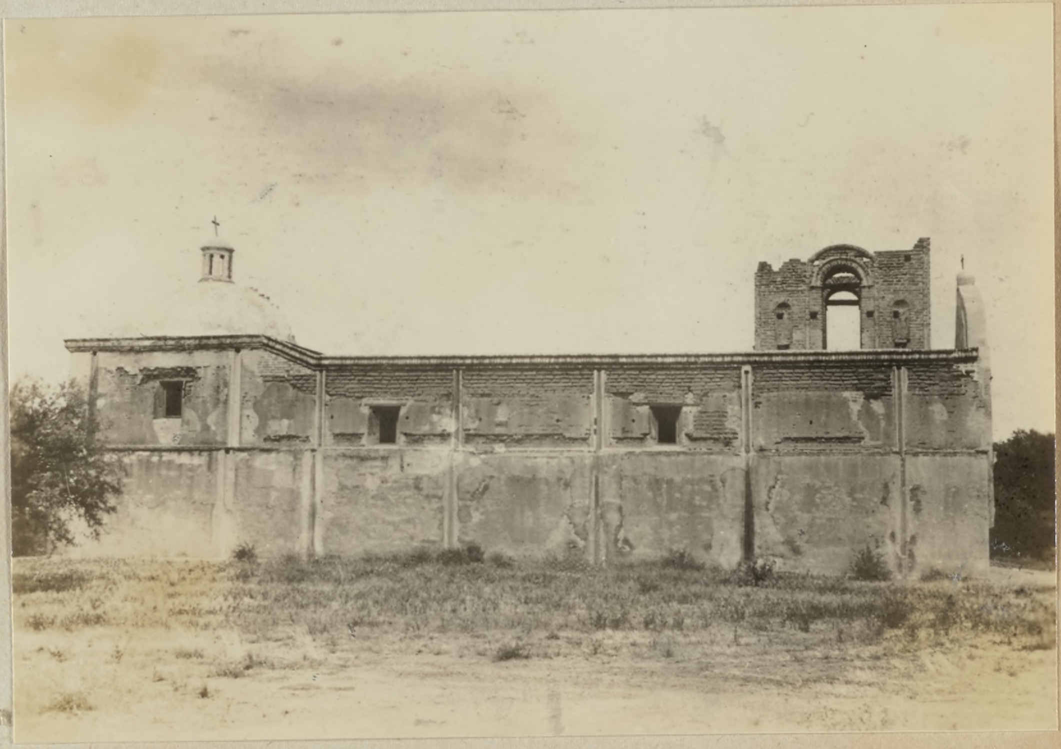
Magdalena
6962 ~~Tumacacor~~i. View
from the Southeast.



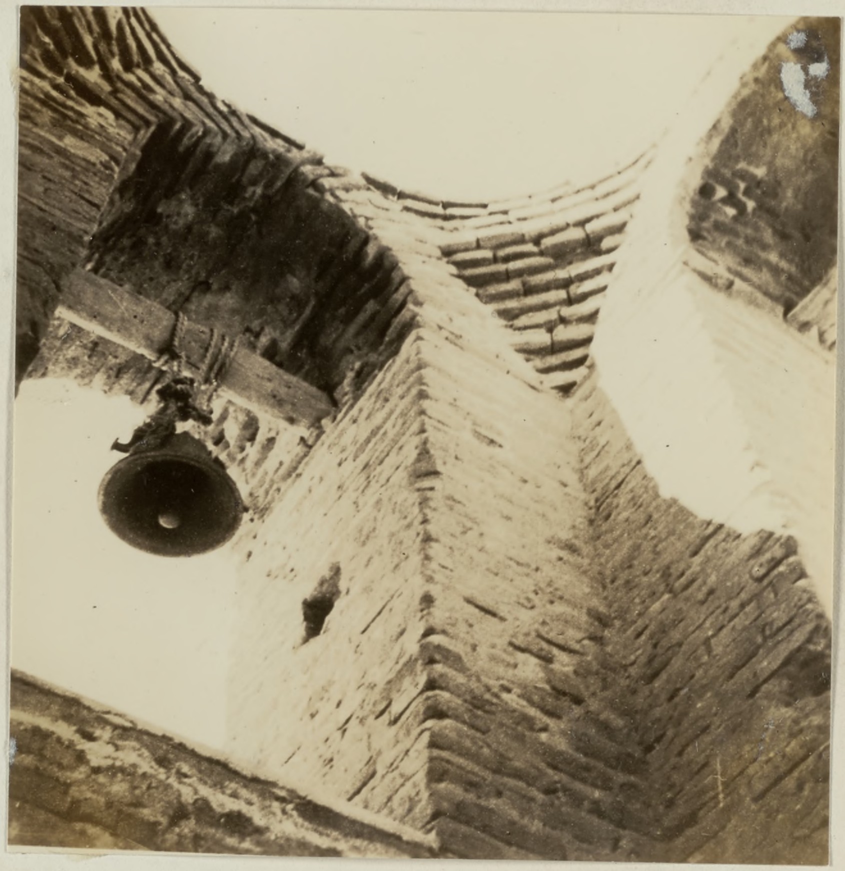
5006 TUMACACORI. Sanctuary dome from the Garden West.



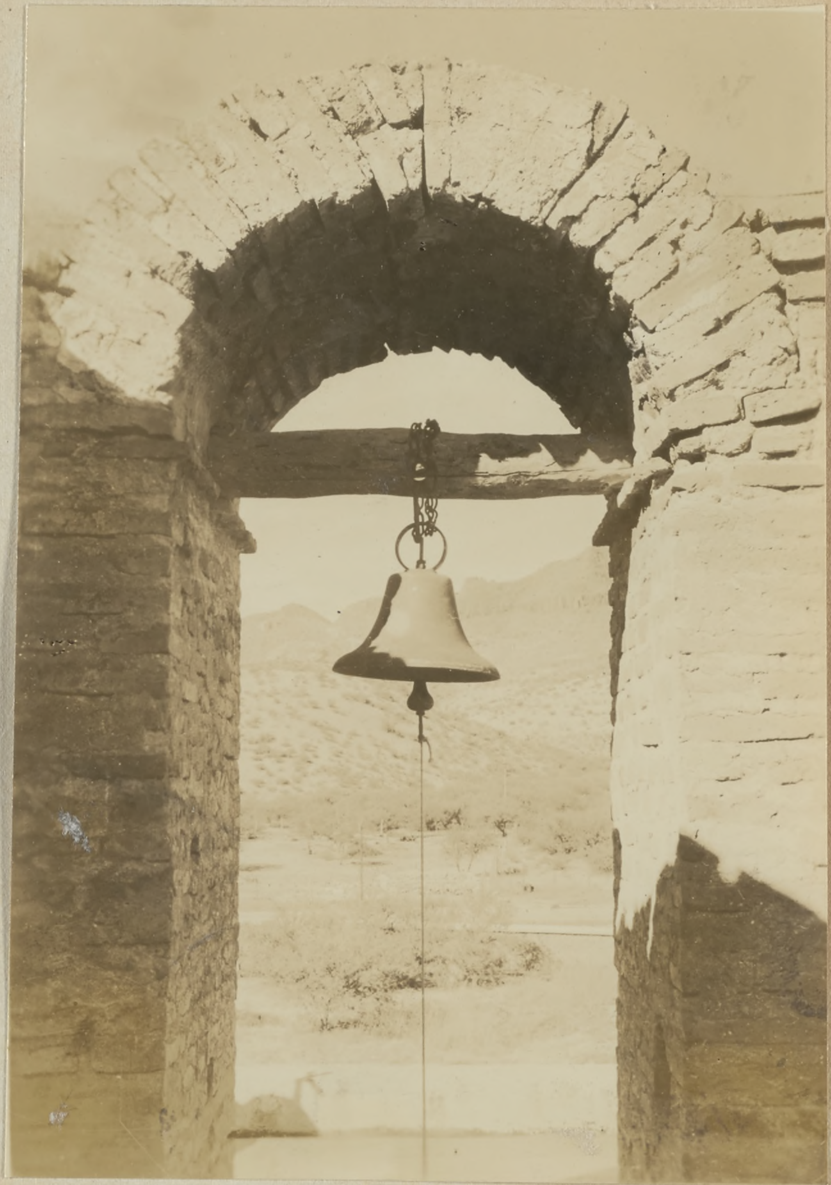
4988 TUMACACORI. Mission from Garden of Southwest.



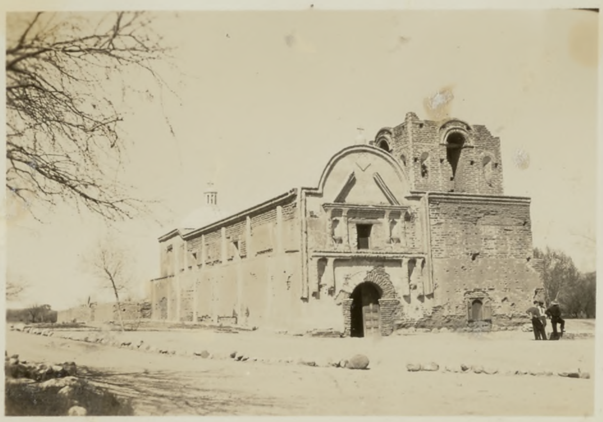
5584 TUMACACORI. Church
View from the West.



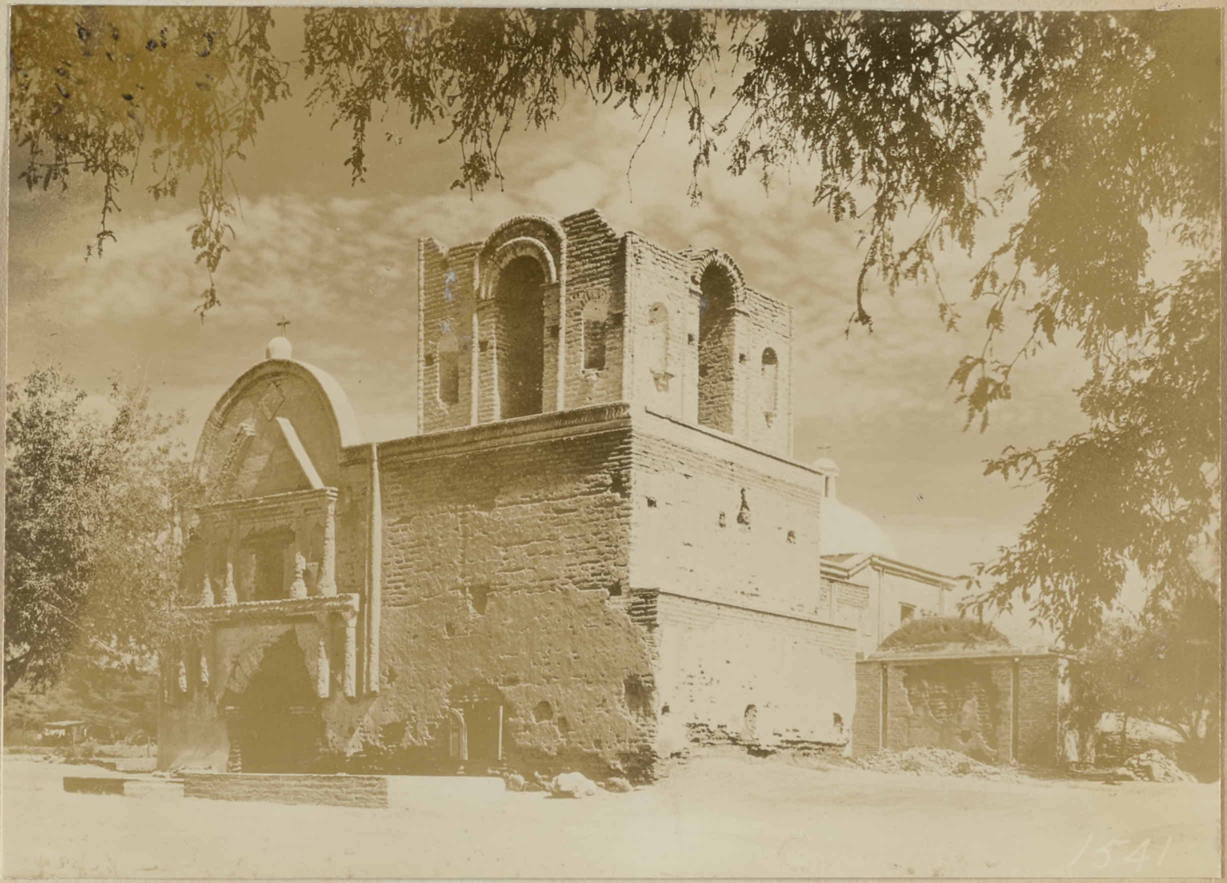
5282 Tumacacori. Looking up into the unfinished bell tower.



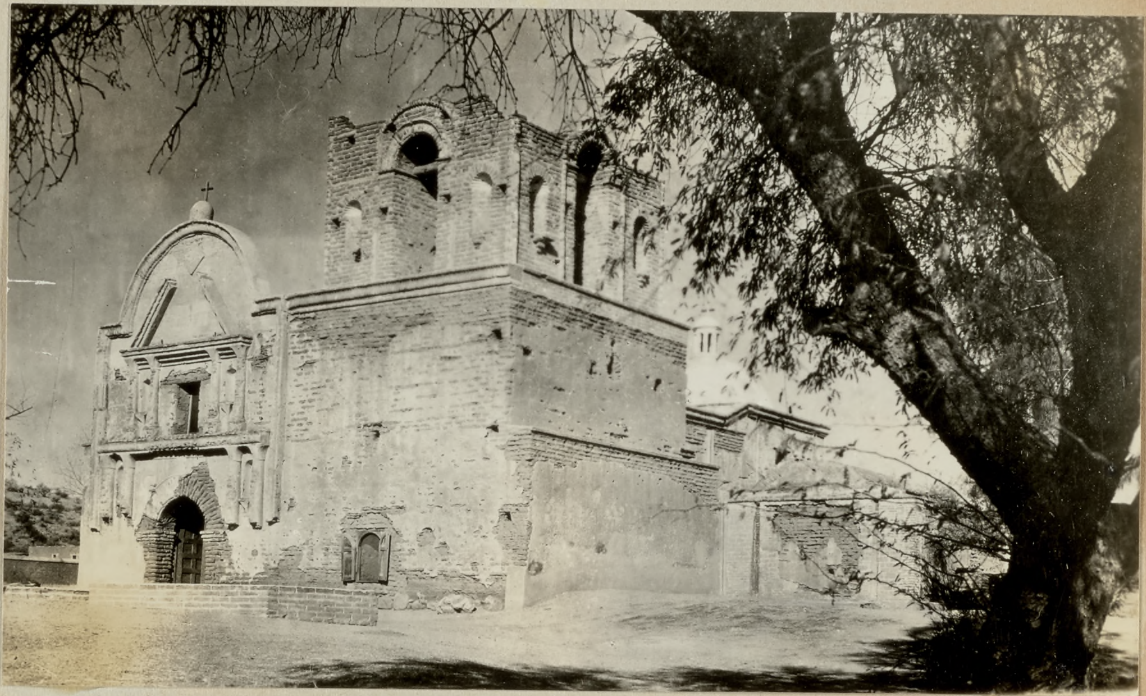
3282 TUMACACORI. Bell Tower
Inside looking west.



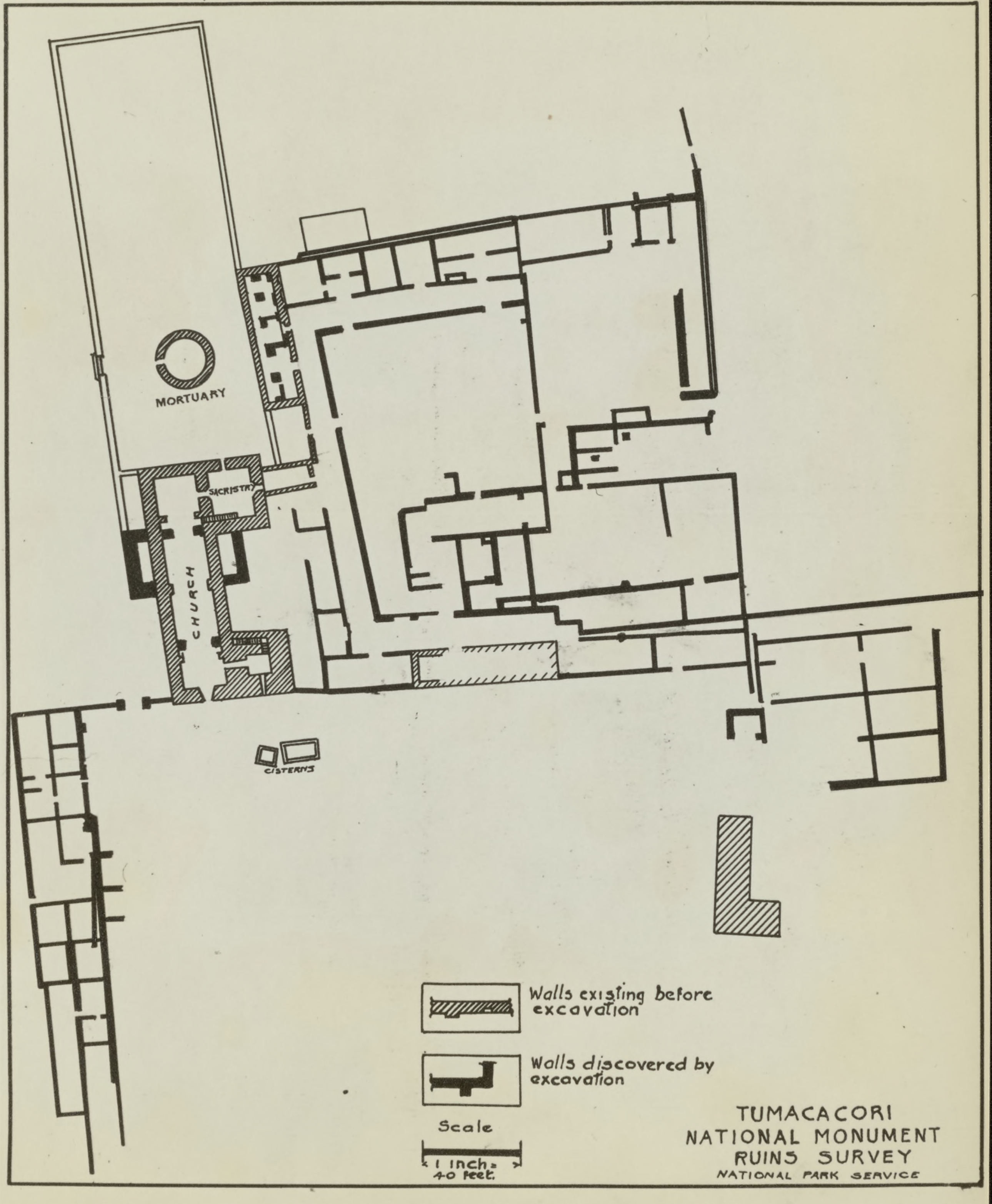
7196 TUMACACORI. Views of Missions. Southwest.



1541 TUMACACORI. View of main Building from the Southeast.



6962 Tumacacori. View from the Southeast.


MORTUARY
SACRISTY
CHURCH
CISTERNS
Walls existing before excavation
Walls discovered by excavation
Scale
1 inch = 40 feet.

TUMACACORI
NATIONAL MONUMENT
RUINS SURVEY
NATIONAL PARK SERVICE

SAN ANTONIO DE OQUITOA

SAN ANTONIO de OQUITOA

CONDITION OF CHURCH: Fairly well preserved.

FOUNDATIONS: Rubble stone in cement.

FLOORS: Brick, laid in herring-bone pattern in Navé. Square tiles in Baptistry and Sacristy.

WALLS: Adobe with burned brick facing.

CEILINGS: Round and square ceiling beams throughout, spanned by cane and split saguaro ribs. Carved wood corbels under Nave ceiling beams. Sanctuary ceiling about 3 feet higher than Nave ceiling.

EXTERIOR: Plaster over brick. Stone buttresses at rear.

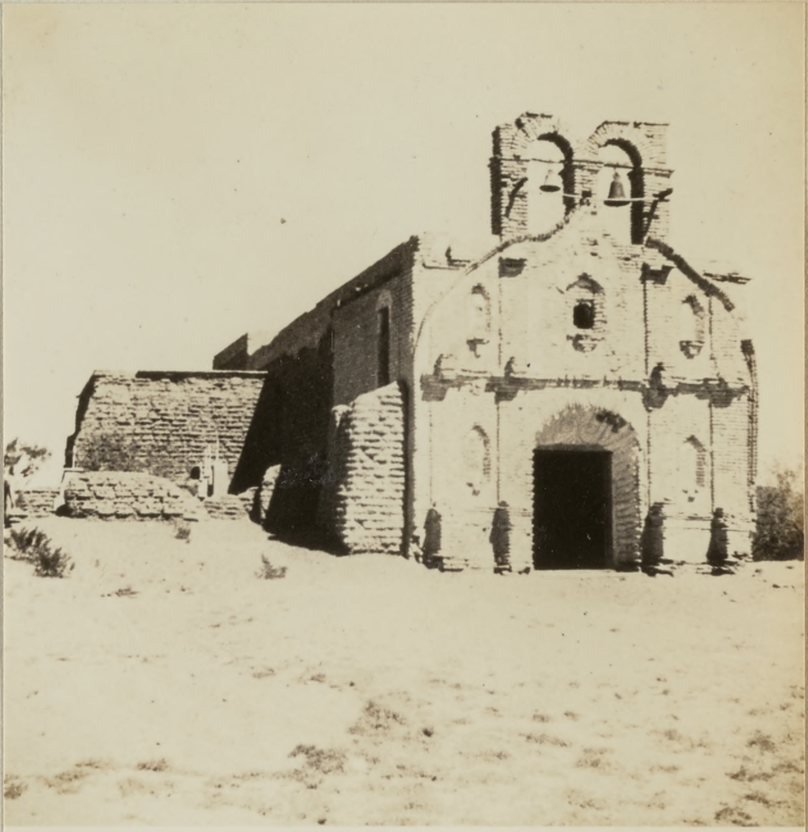
INTERIOR: Finish - lime plaster whitewashed. Evidence of painted wainscots under whitewash.

DOORS: Flush panel plank doors of mesquite.

CHOIR LOFT: New wood construction.

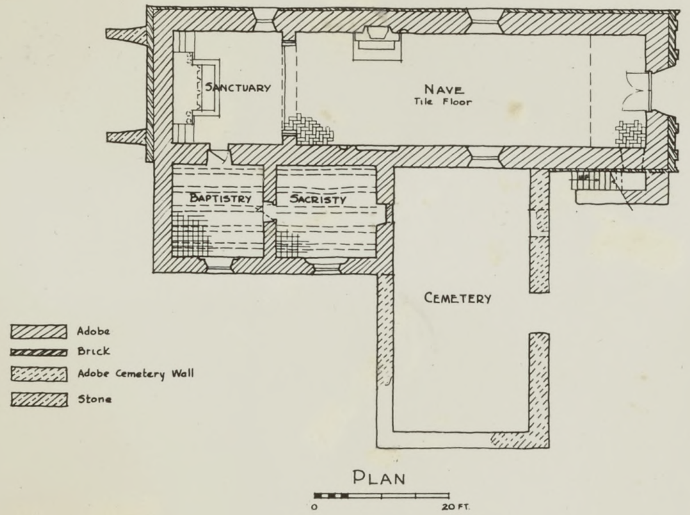
STAIRS: Outside brick stairs to choir loft.

OUTLYING BUILDINGS: Portions of adobe cemetery wall still standing adjoining west wall of church.

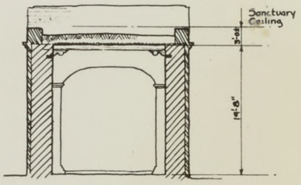


SAN ANTONIO de OQUITOA

The plaster ornament which once adorned this entrance facade still remains in the door reveal.
Oct. 20, 1935



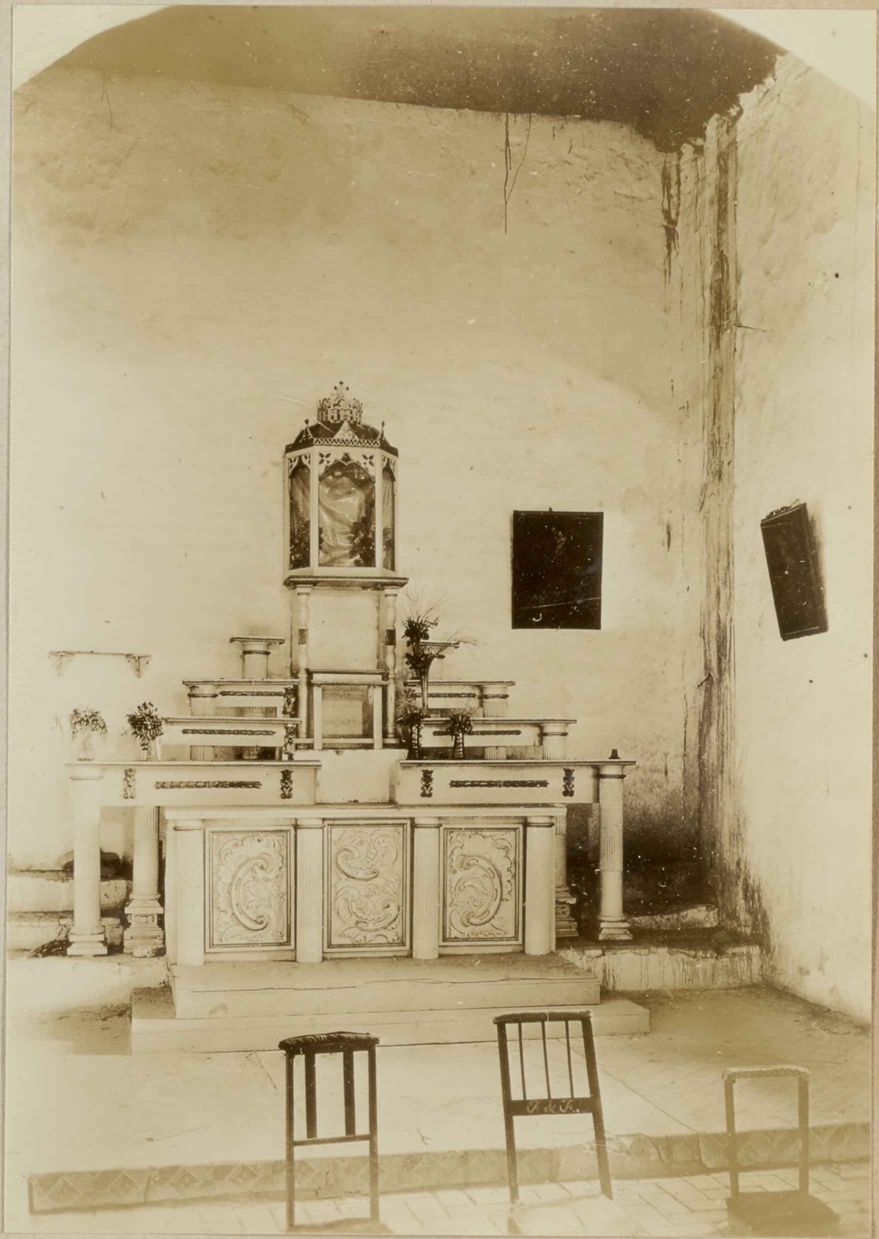
PLAN



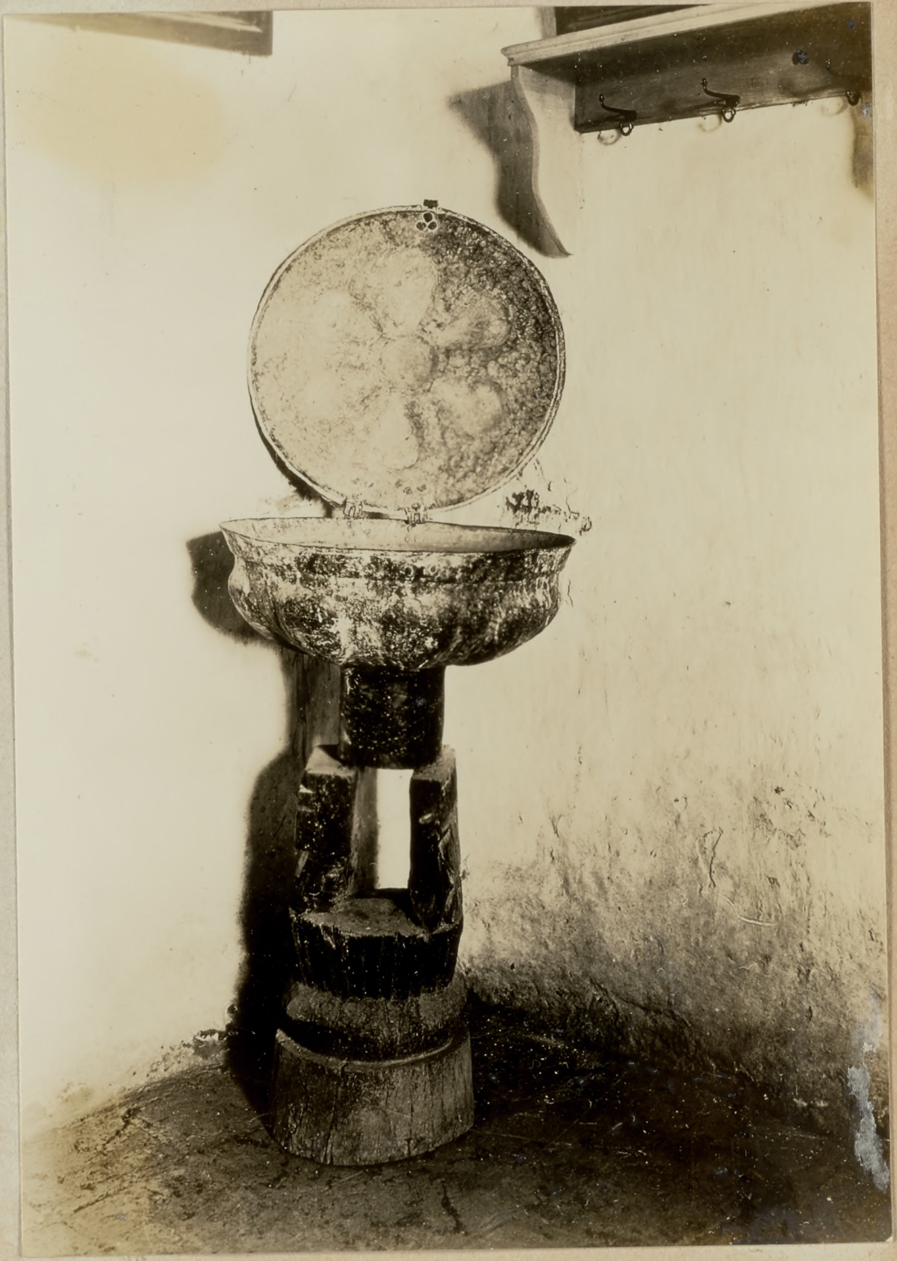
SECTION

MEASURED AND DRAWN BY DELONG

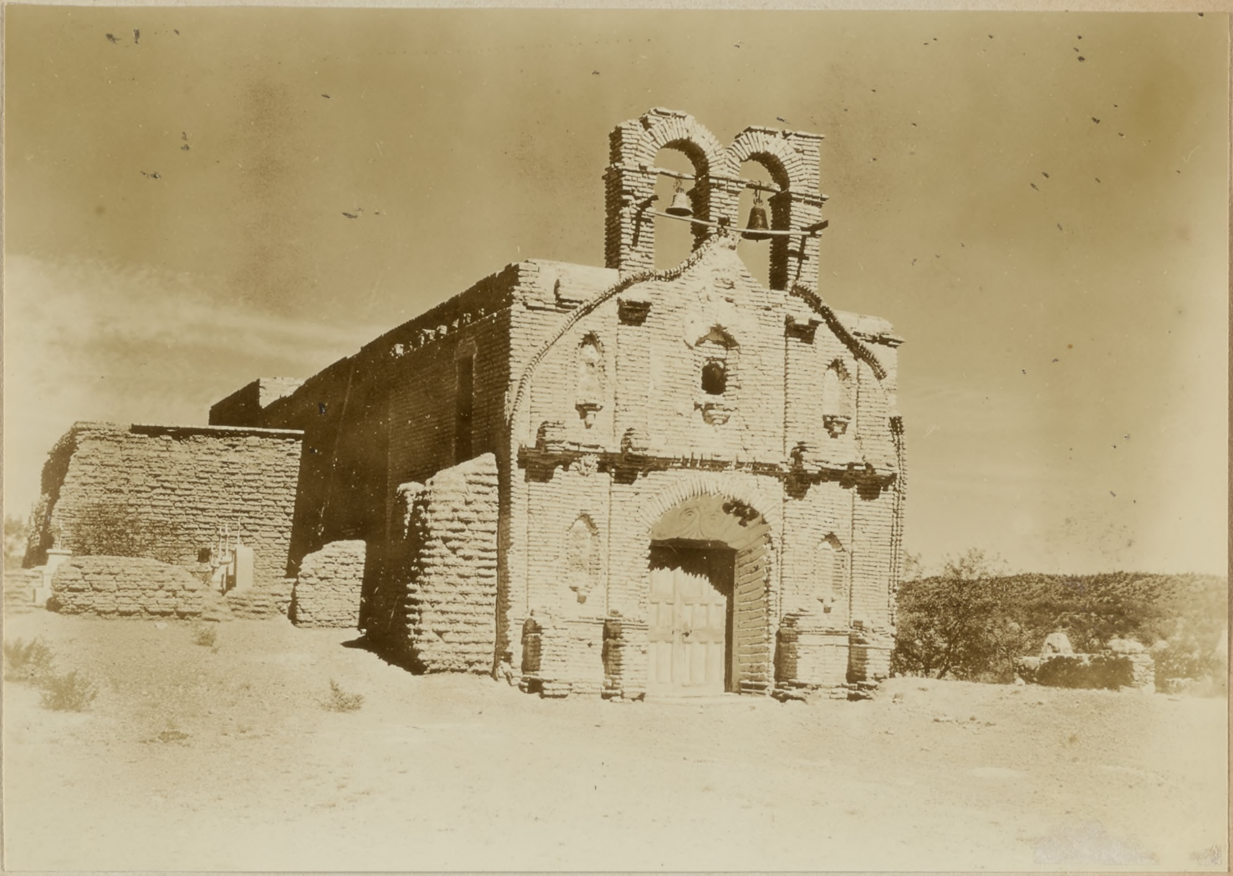
MISSION SAN ANTONIO DE OQUITOA
SONORA MEXICO



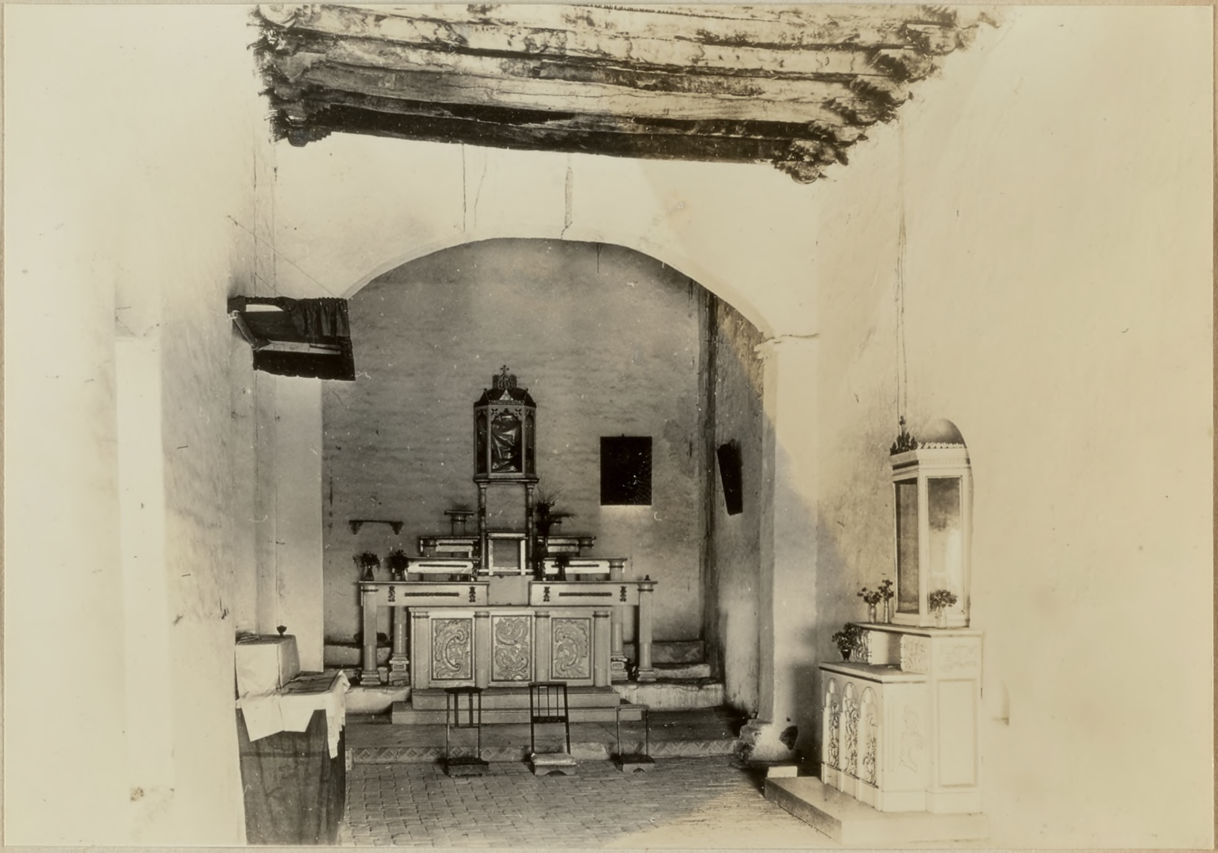
2815 Oquitoa. Detail of High Altar, situated at North end of Church.



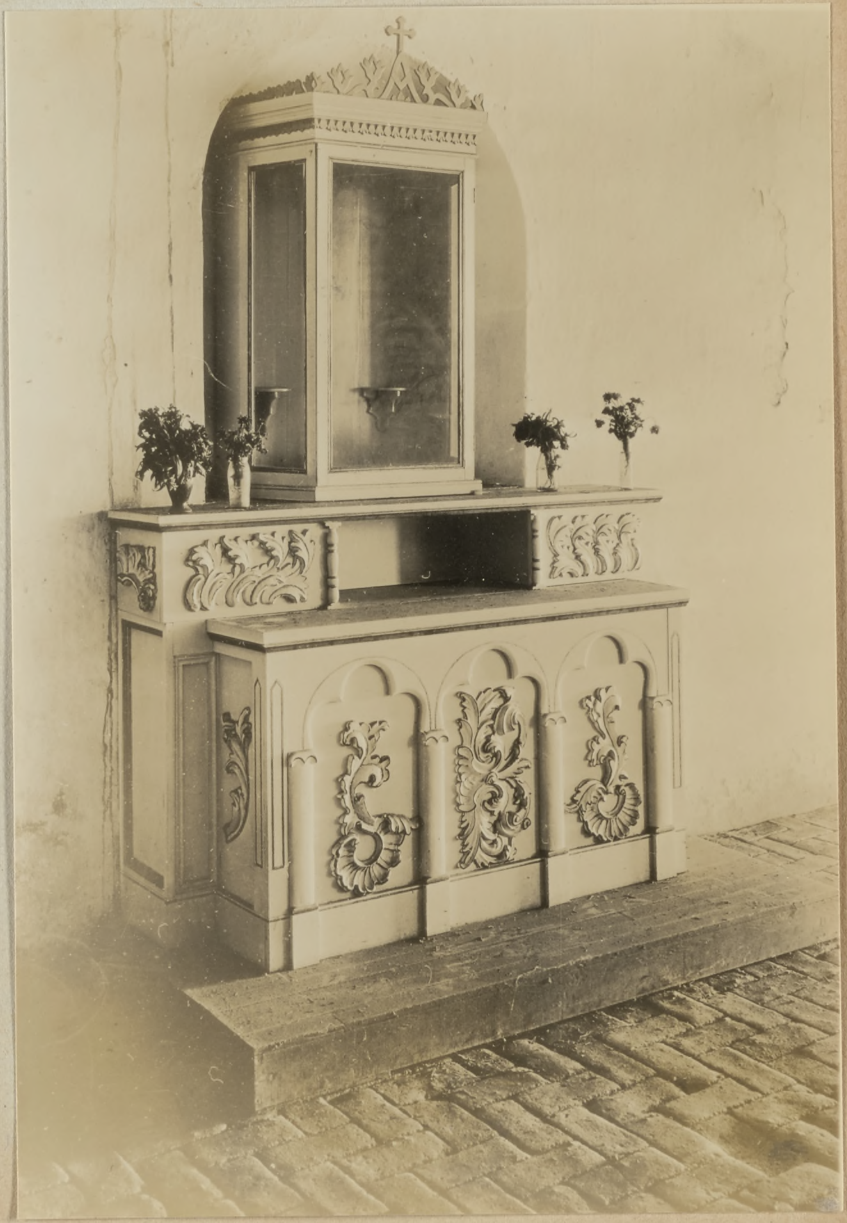
2814 Oquitoa. Baptistry Fount and Cover.



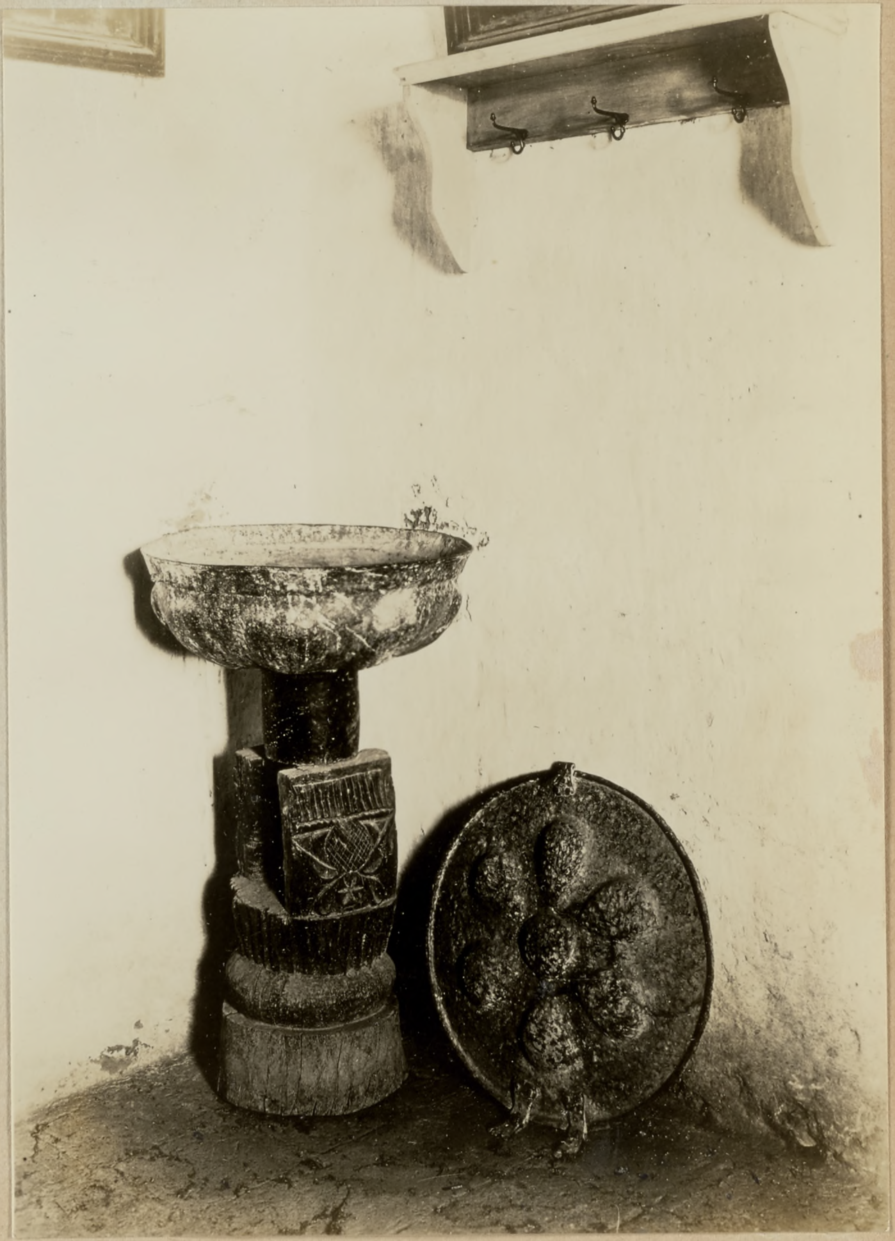
2749 Oquitoa. Facade of church from the Southwest.



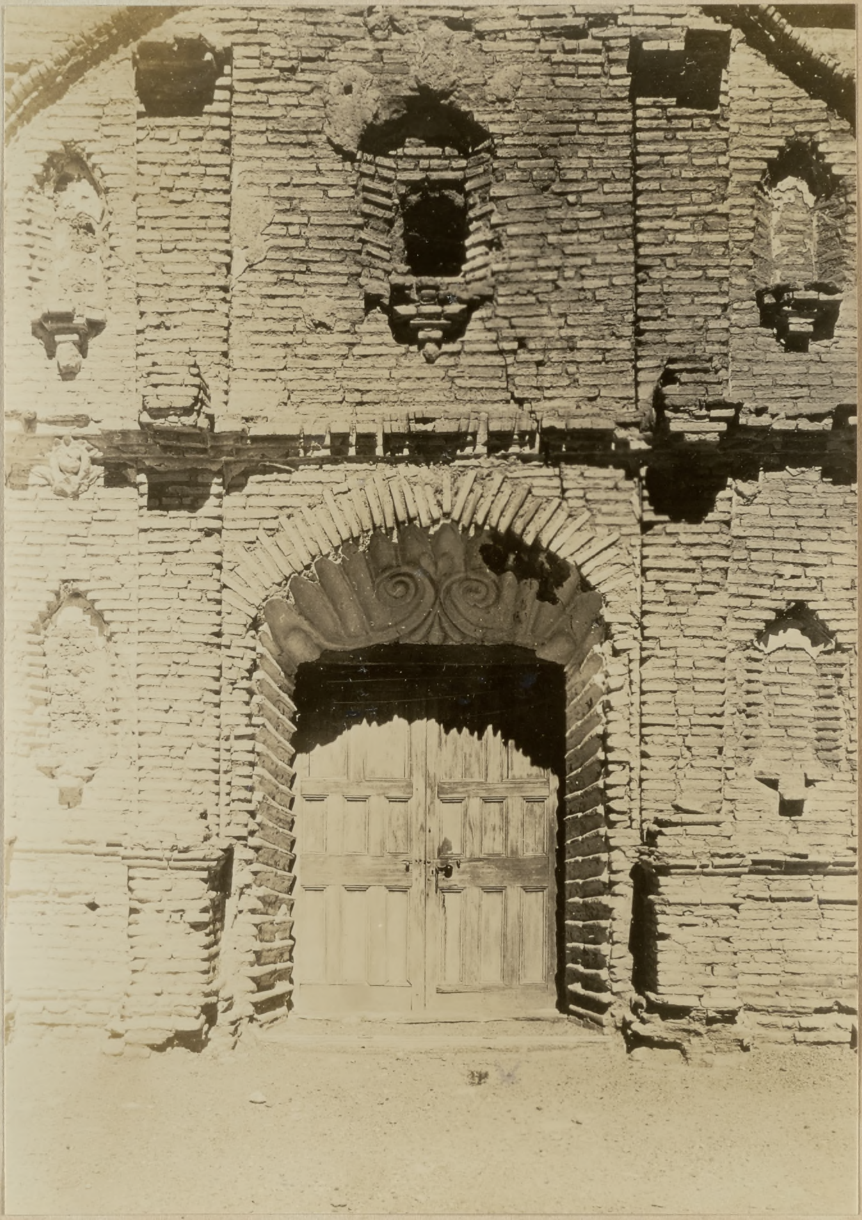
2747 Oquitoa. View of Nave and Sanctuary, showing both sides of Altar. North end of Church.



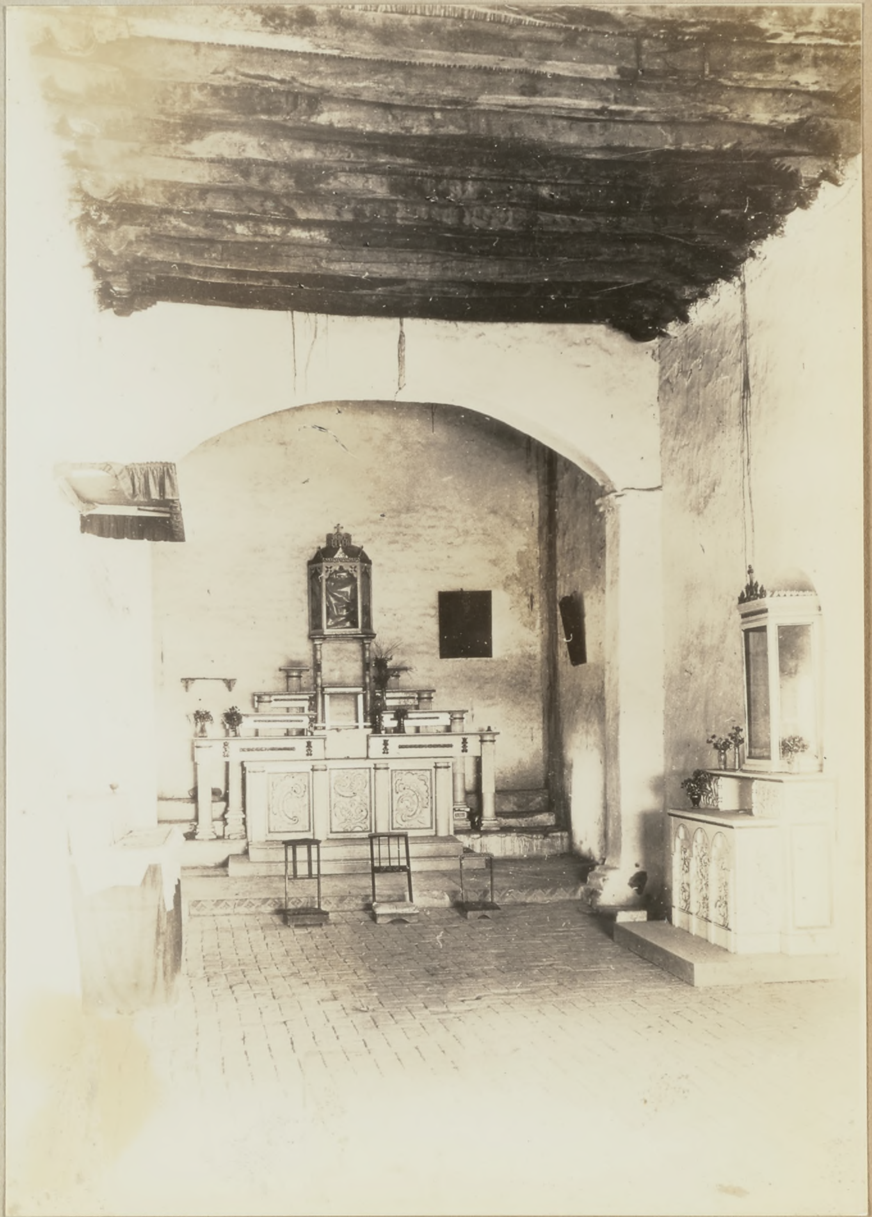
2746 Oquitoa. View of Eastern Altar.



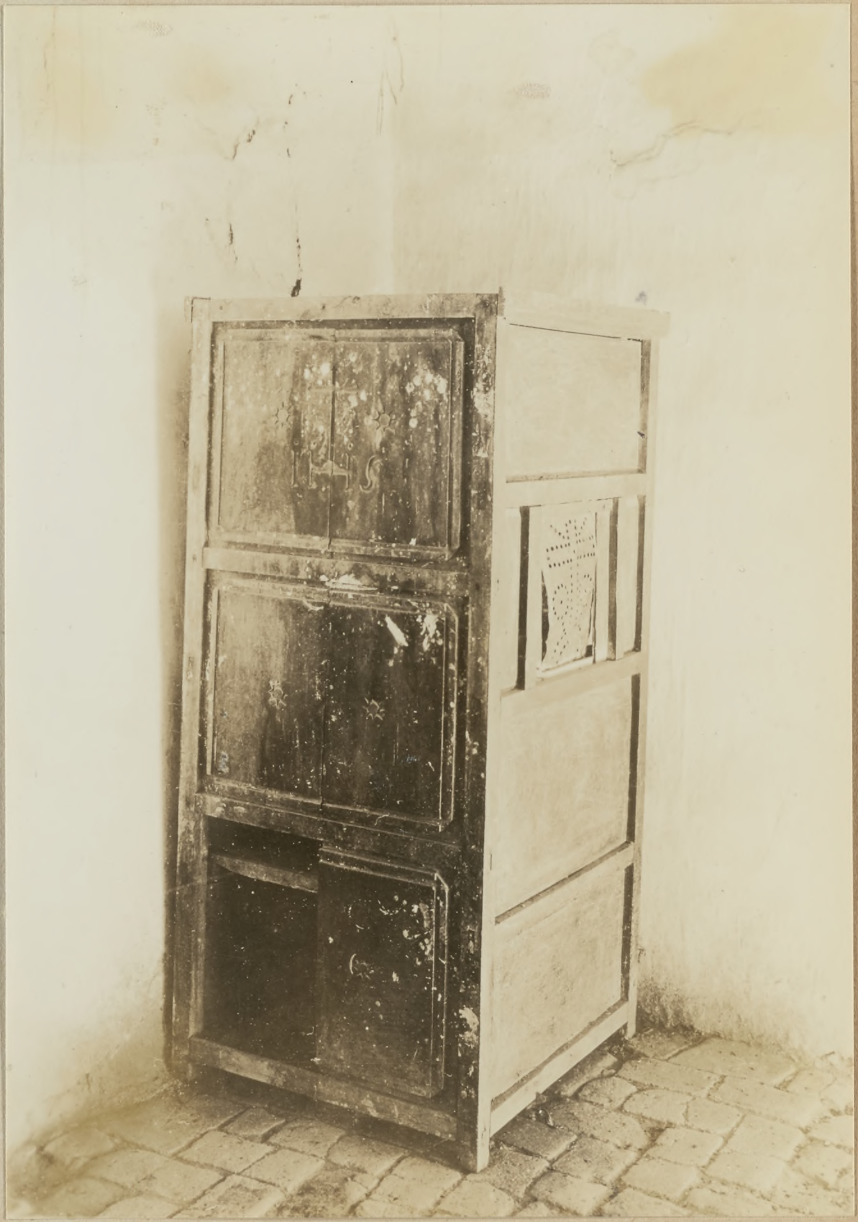
2813 Oquitoa. Baptistry
Fount and cover.



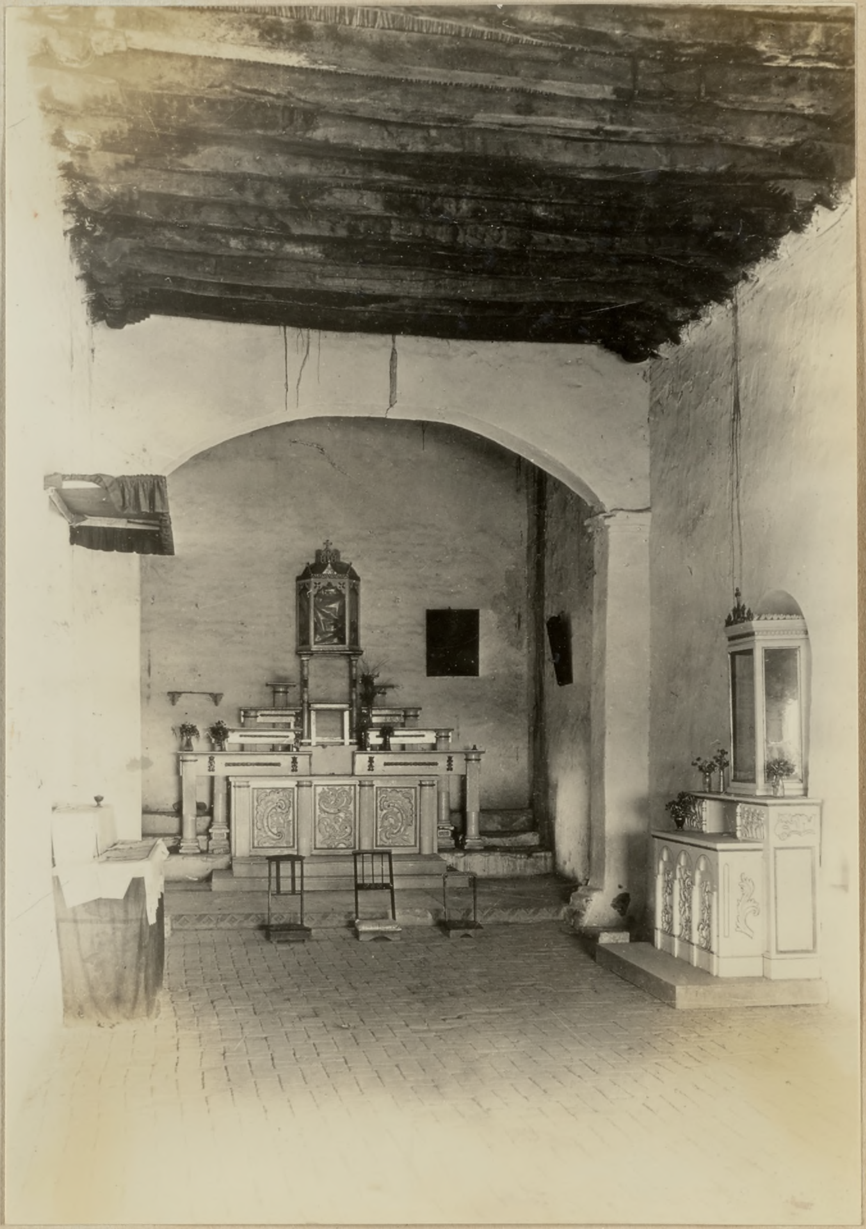
2743 Oquitoa. Entrance -
Outside Wall.



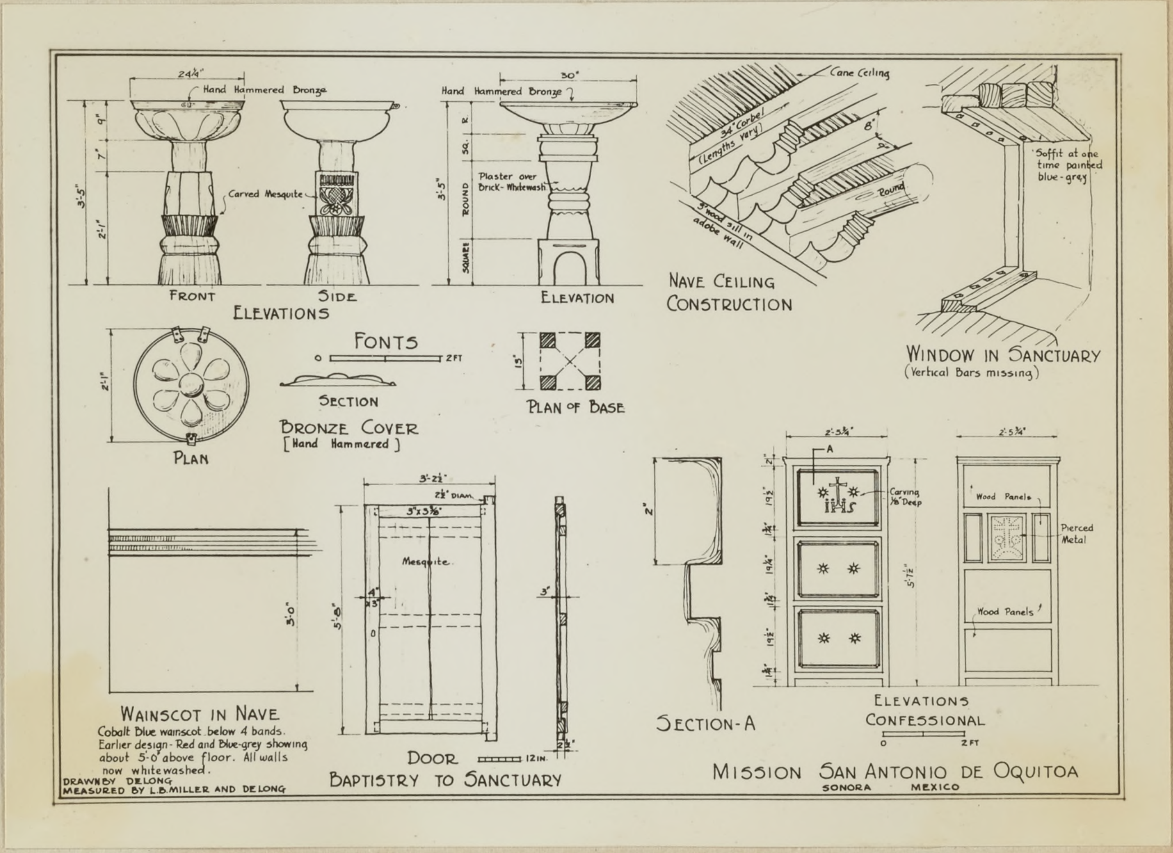
2716 Oquitoa. View of Nave
and Sanctuary, showing two sides
of Altar in North end of Church.



2643 San Antonio de Oquitoa.
Confessional.



2716 Oquitoa. View of Nave and Sanctuary showing two sides of Altar.



Cobalt Blue wainscot below 4 bands. Earlier design - Red and Blue-grey showing about 5'-0" above floor. All walls now whitewashed.

DRAWN BY DELONG
MEASURED BY L.B. MILLER AND DELONG

MISSION SAN ANTONIO DE OQUITOA
SONORA MEXICO

SAN XAVIER DEL BAC

SAN XAVIER del BAC

CONDITION OF CHURCH: Best preserved of the Missions, and the only church still in use.

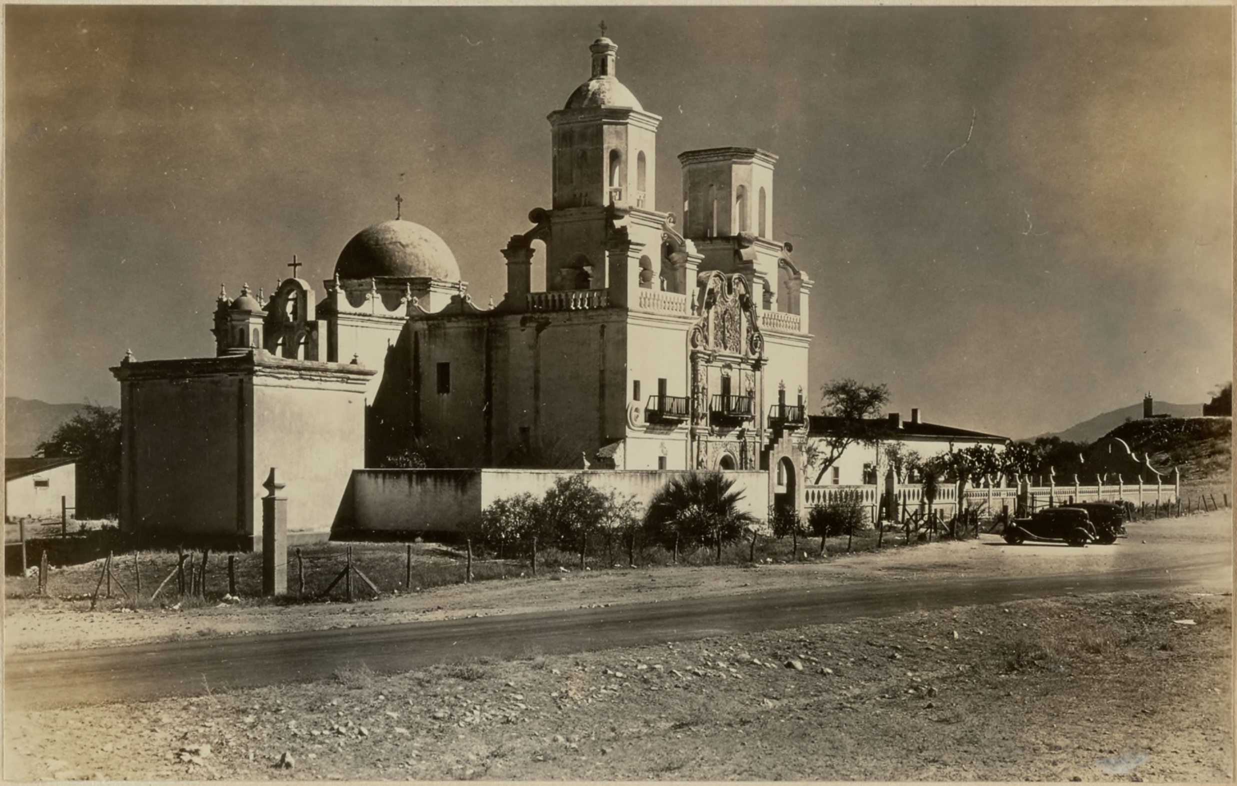
FOUNDATIONS: Rubble stone, well cemented.

WALLS: Burned brick with molded brick cornice.

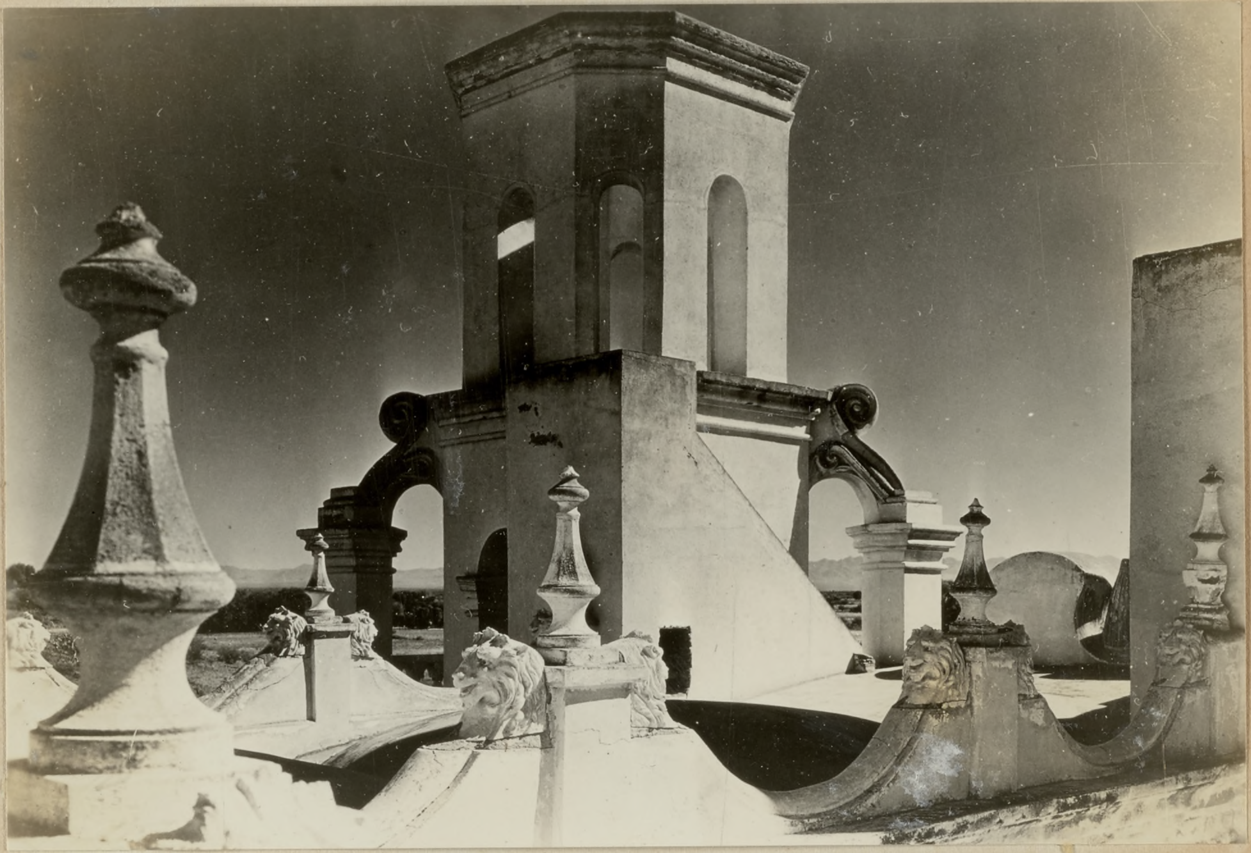
CEILINGS: Nave - flat domes between transverse brick ribs. Dome over crossing support on a high octagonal drum.

EXTERIOR: Finish - whitewashed plaster. Entrance facade highly decorative with pilasters and panels decorated with low plaster relief.

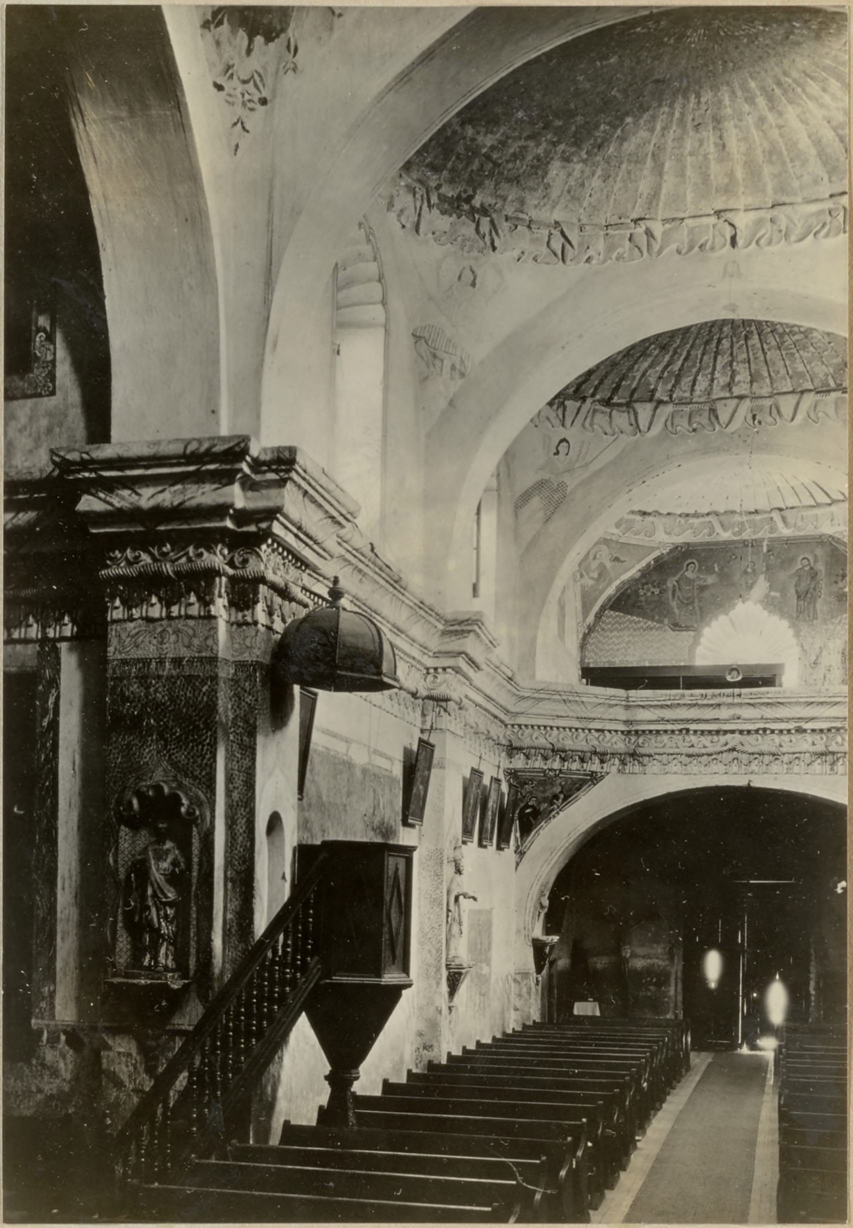
INTERIOR: Finish - lime plaster with elaborately decorated chapels and reredos. Interior elaborate with painted decorations on walls, ceilings, and cornice.



2621 San Xavier del Bac.
Church from the Southwest.



2683 San Xavier ~~de Magdalena~~.
de Bac



2681 San Xavier del Bac.
Choir loft from the North.

SAN FRANCISCO XAVIER DE MAGDALENA

SANTA MARIA MAGDALENA

CONDITION OF CHURCH: A modern and not particularly interesting structure in good condition.

FOUNDATIONS: Cemented stone.

WALLS: Burned brick with molded brick cornice.

CEILINGS: Nave - flat domes between transverse brick ribs.

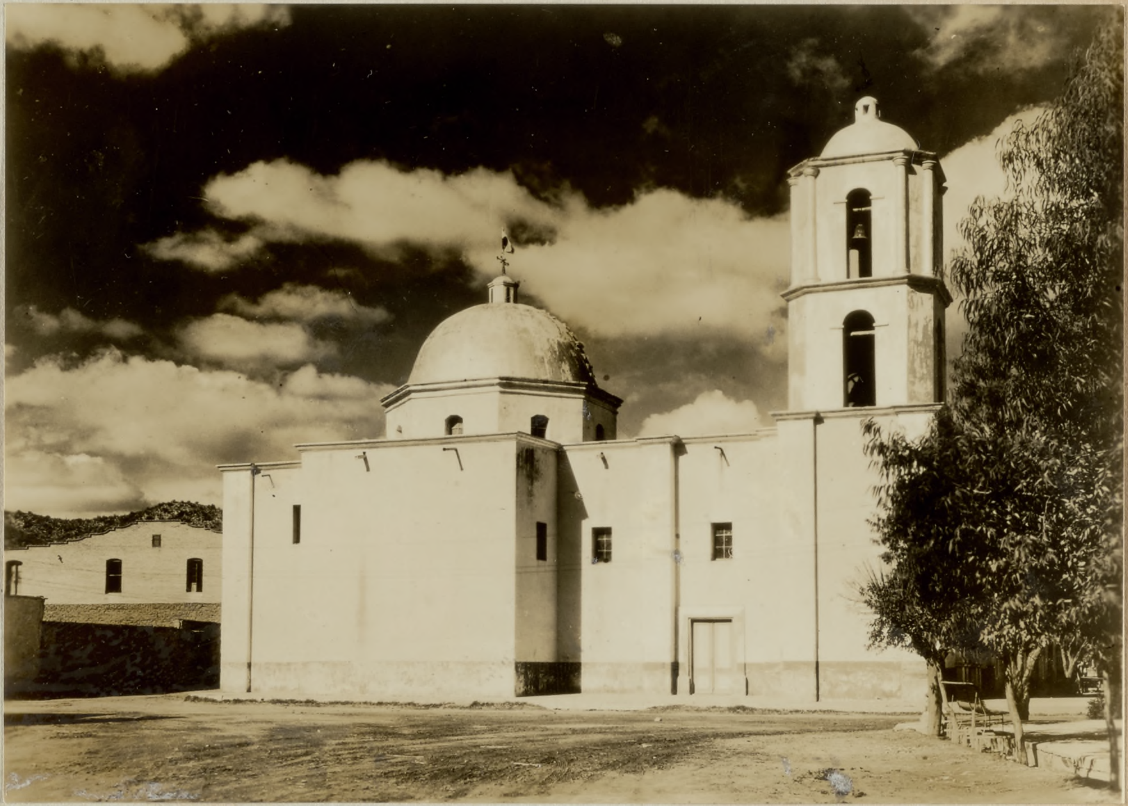
Crossing - dome on octagonal drum.

EXTERIOR: Finish - stucco, whitewashed.

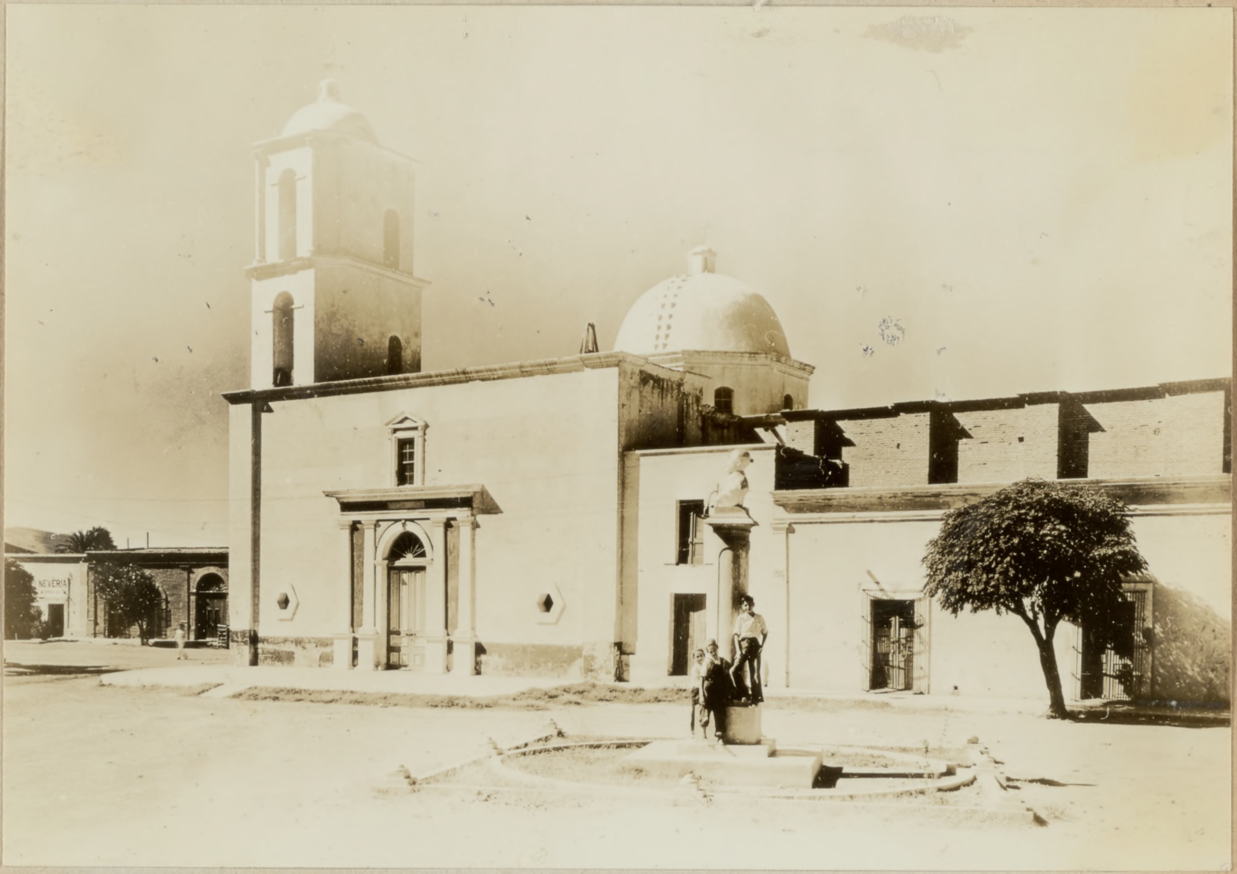
INTERIOR: Finish - whitewashed lime plaster.

Main Altar - recent classic design.

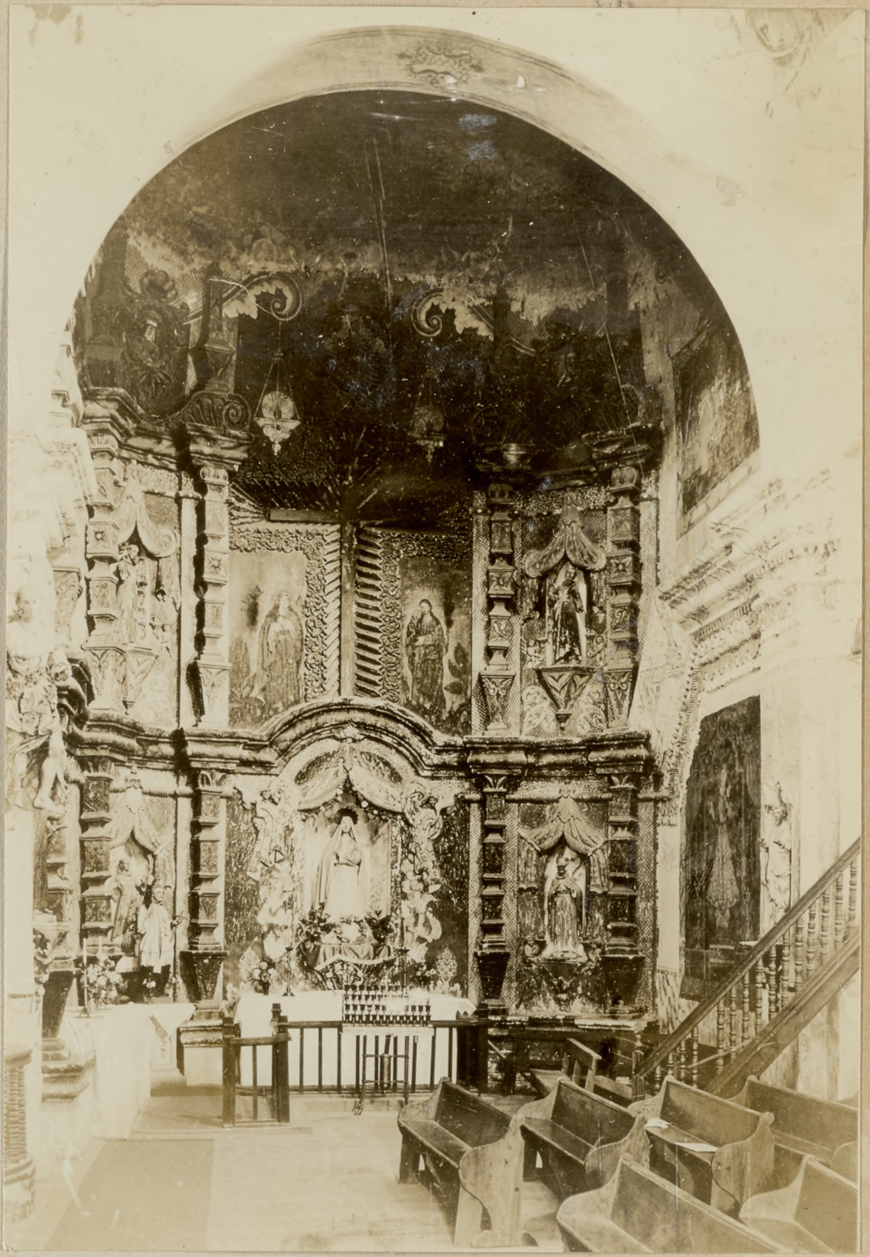
Side Altar - older and more interesting with gold and white columns.



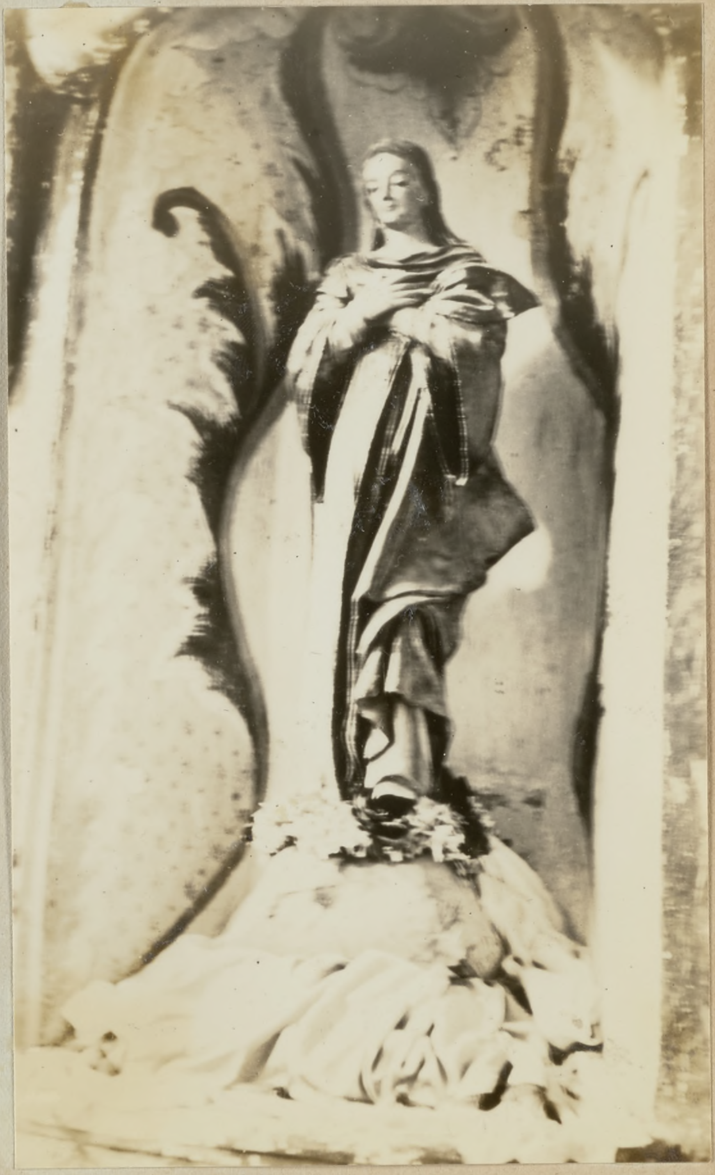
2573 Magdalena.
View from the East.



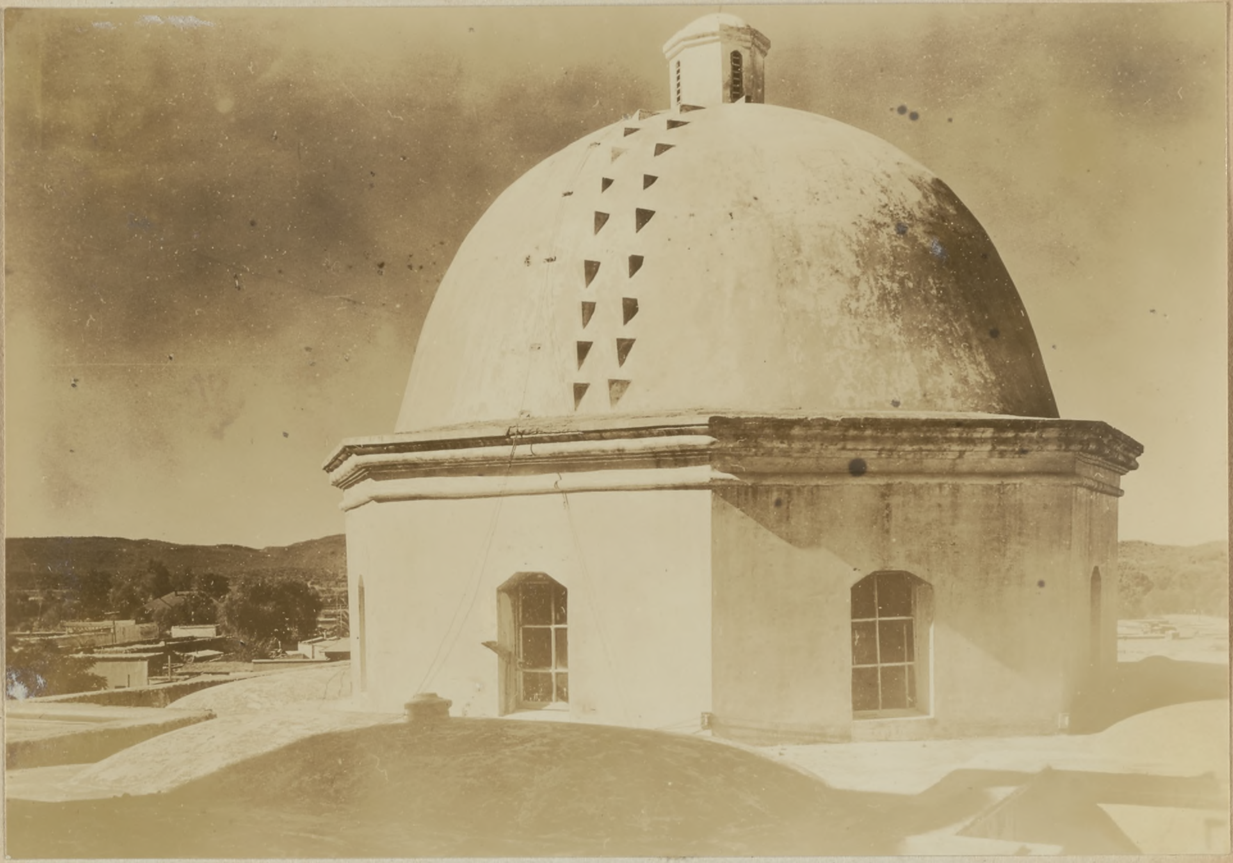
2698 San Francisco Xavier de Magdalena, Sonora. View from the Northwest.



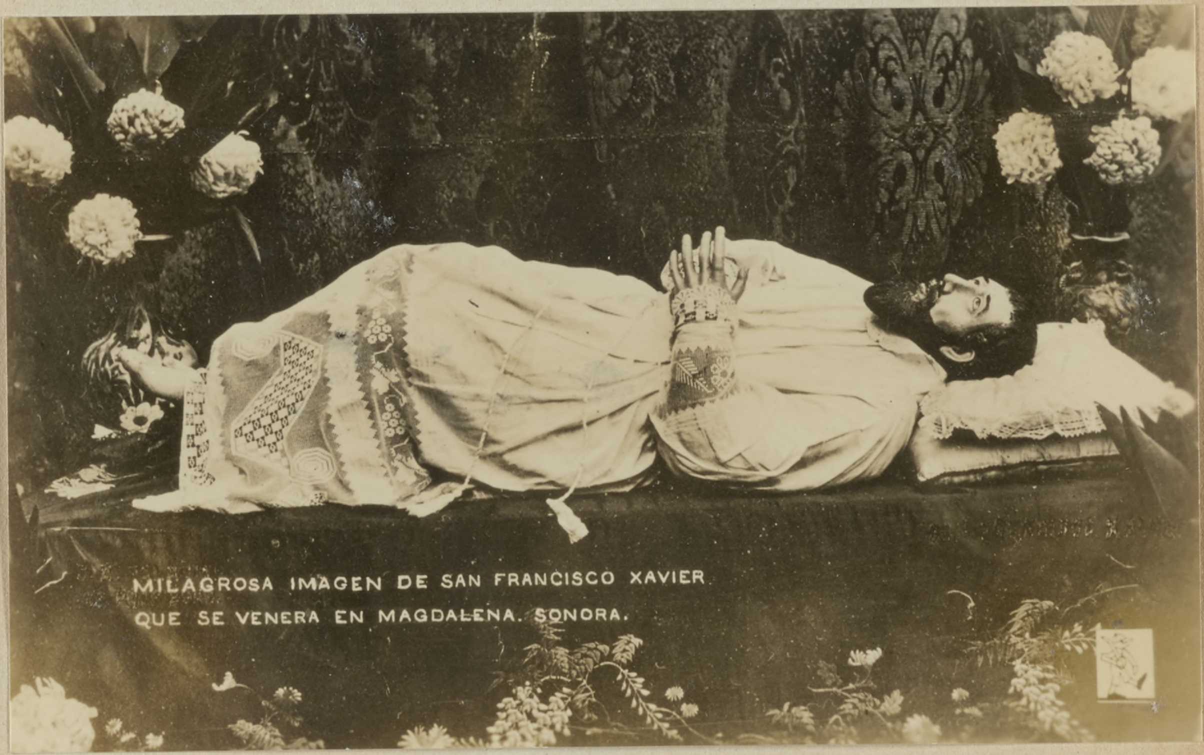
2684 Magdalena. Interior.



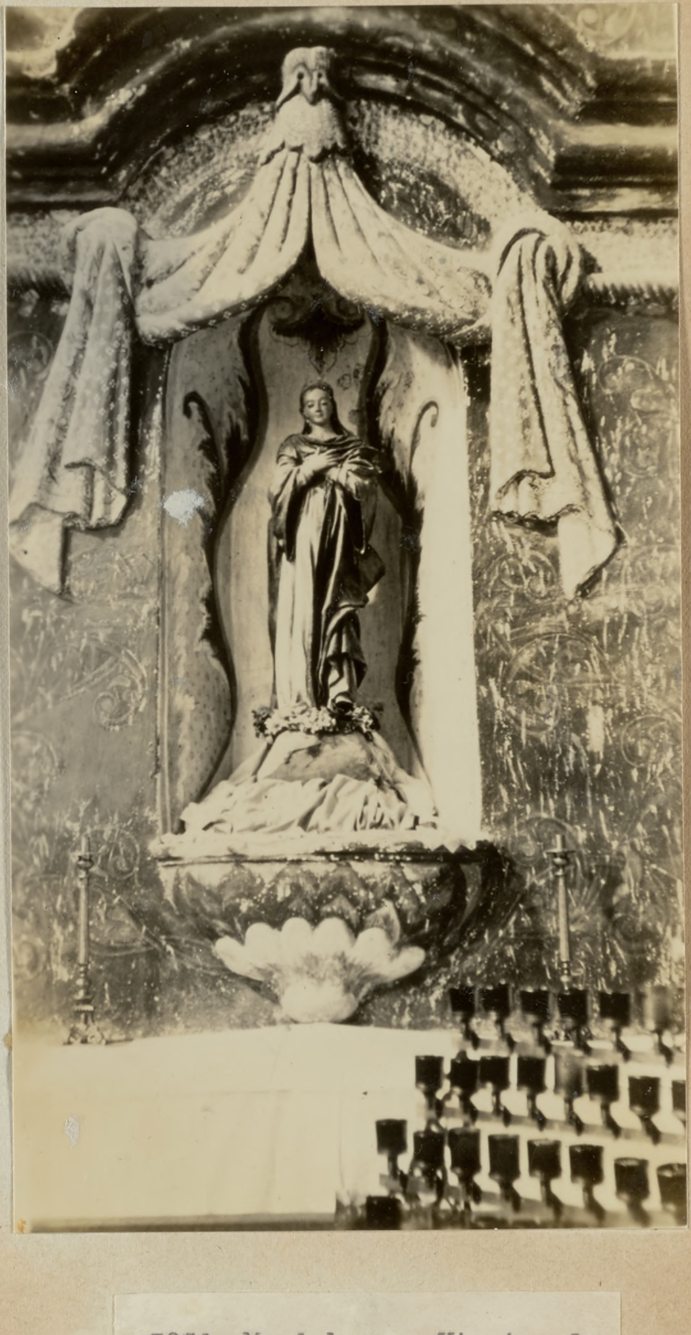
5981 Magdalena. Virgin of Annunciation, East Transept.



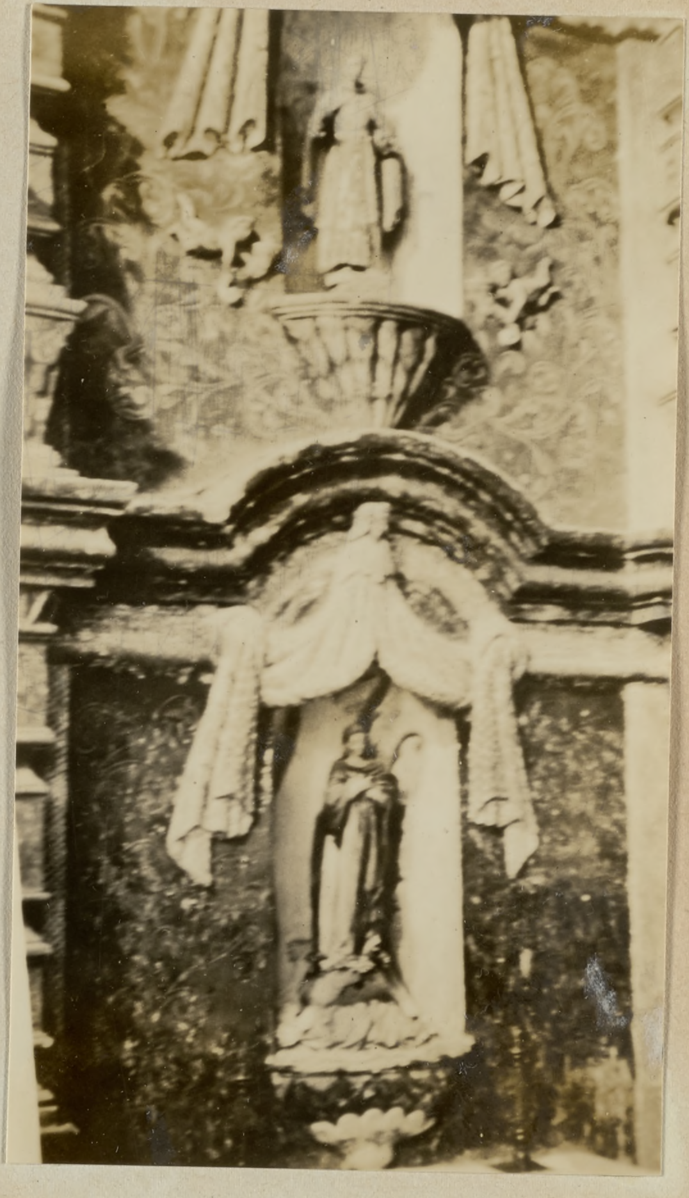
2690 Magdalena. Dome of San Francisco de Xavier. View from the North of Sonora.



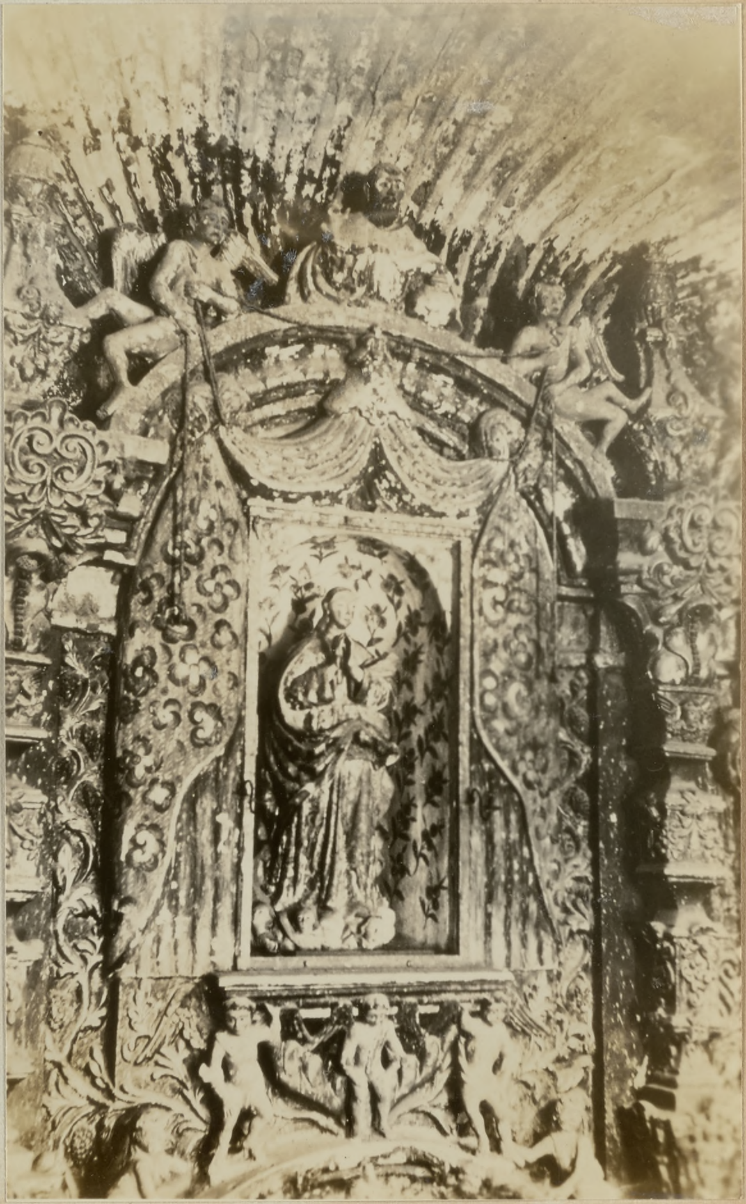
MILAGROSA IMAGEN DE SAN FRANCISCO XAVIER
QUE SE VENERA EN MAGDALENA. SONORA.



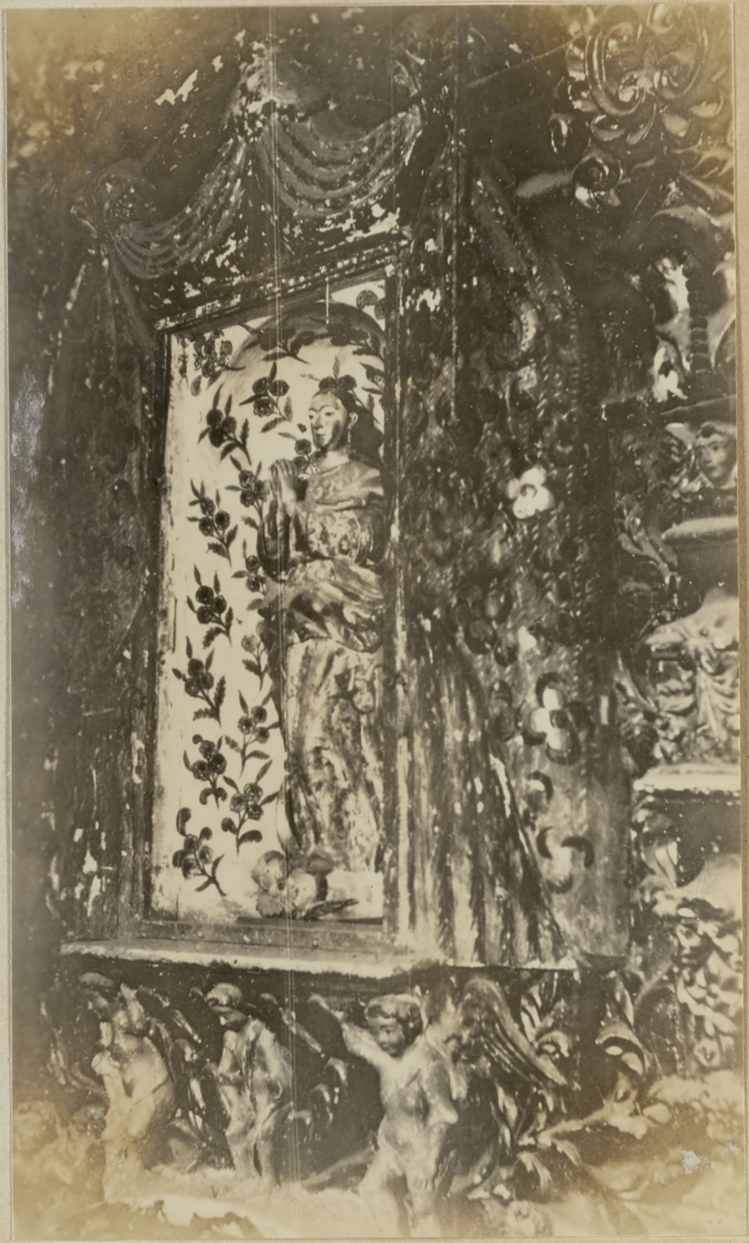
5976 Magdalena. Virgin of
Annunciation, East Transept.



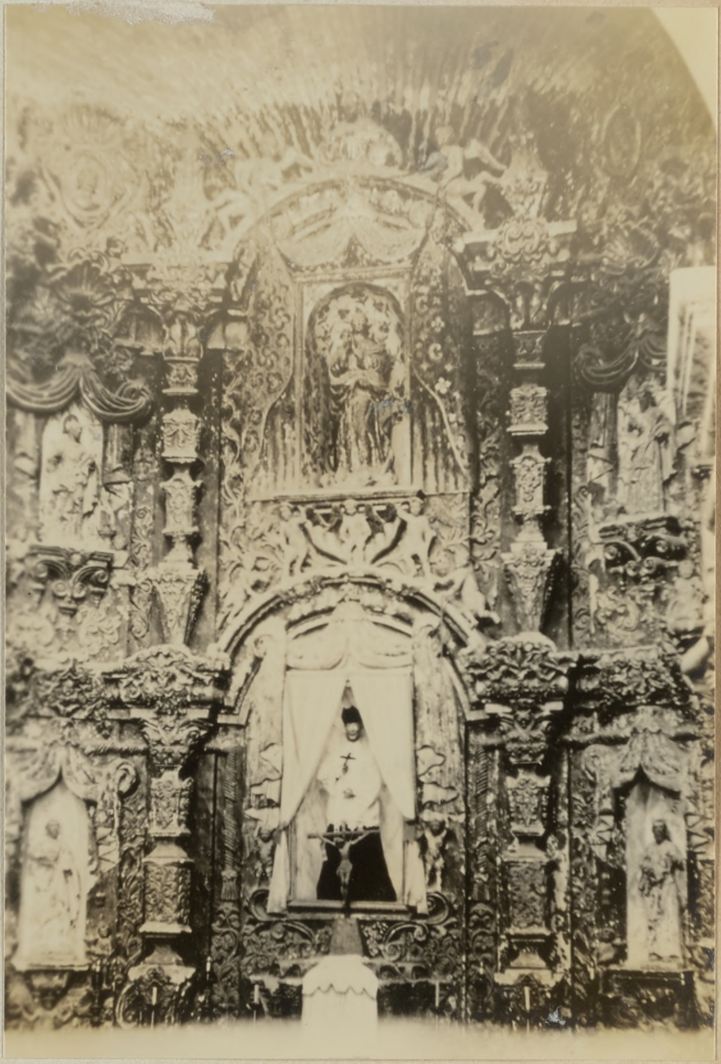
5978 Magdalena. Virgin of
Annunciation, East Transept.



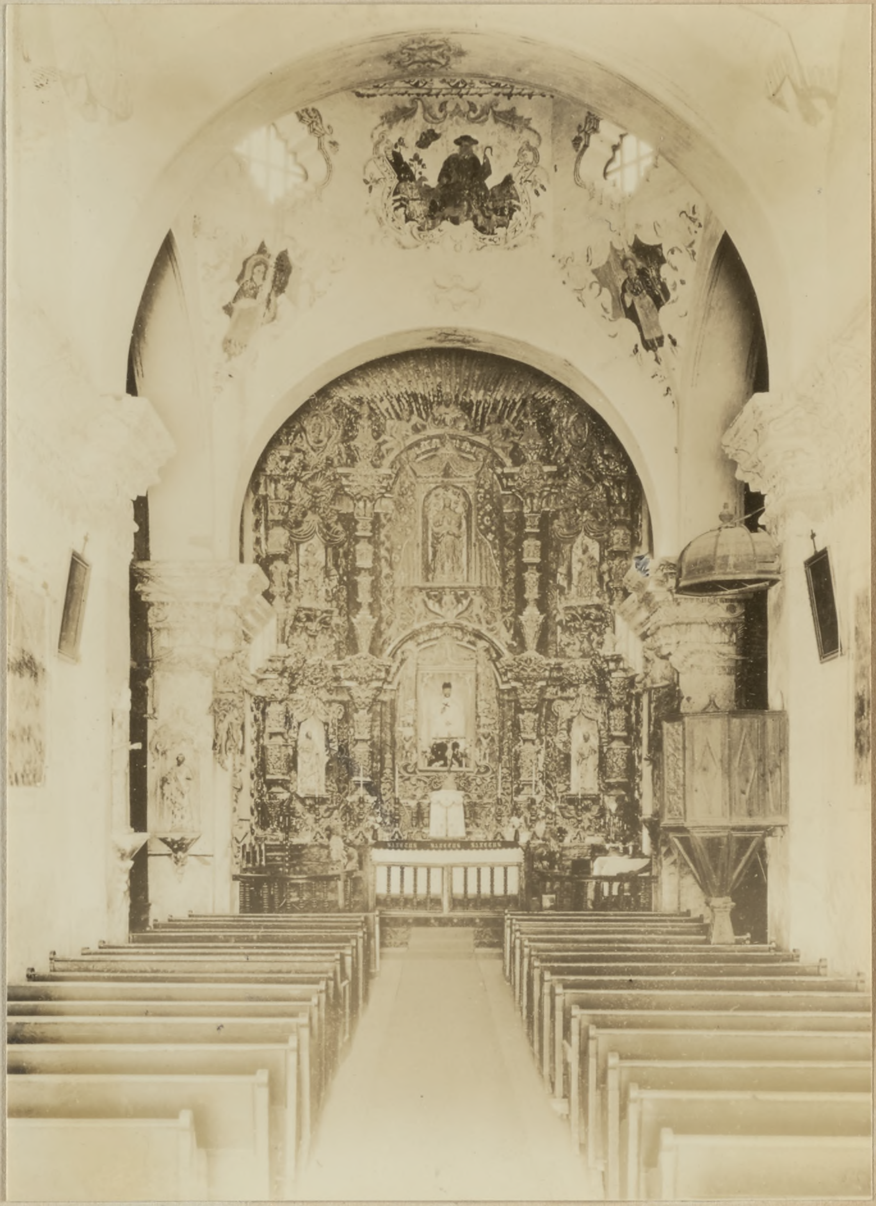
5977 Magdalena. Virgin
of Annunciation. High Altar.



5979 Magdalena. Virgin of Annunciation, High Altar.



5980 Magdalena.
High Altar.



2833 Magdalena. Nave showing pews and high altar and detail on ceiling.

NUESTRA SANORA DE LA CONCEPCION DEL CABORCA

NUESTRA SENORA de la CONCEPCION del CABORCA

CONDITION OF CHURCH: Rear portion including the Sanctuary, Sacristy and south Transept destroyed by floods, north Transept left exposed. Nave - walled off and now used as a school.

FOUNDATIONS: Well cemented rubble stone.

FLOORS: 6" x 13" burned brick.

WALLS: Well cemented stone and burned brick with brick facing.

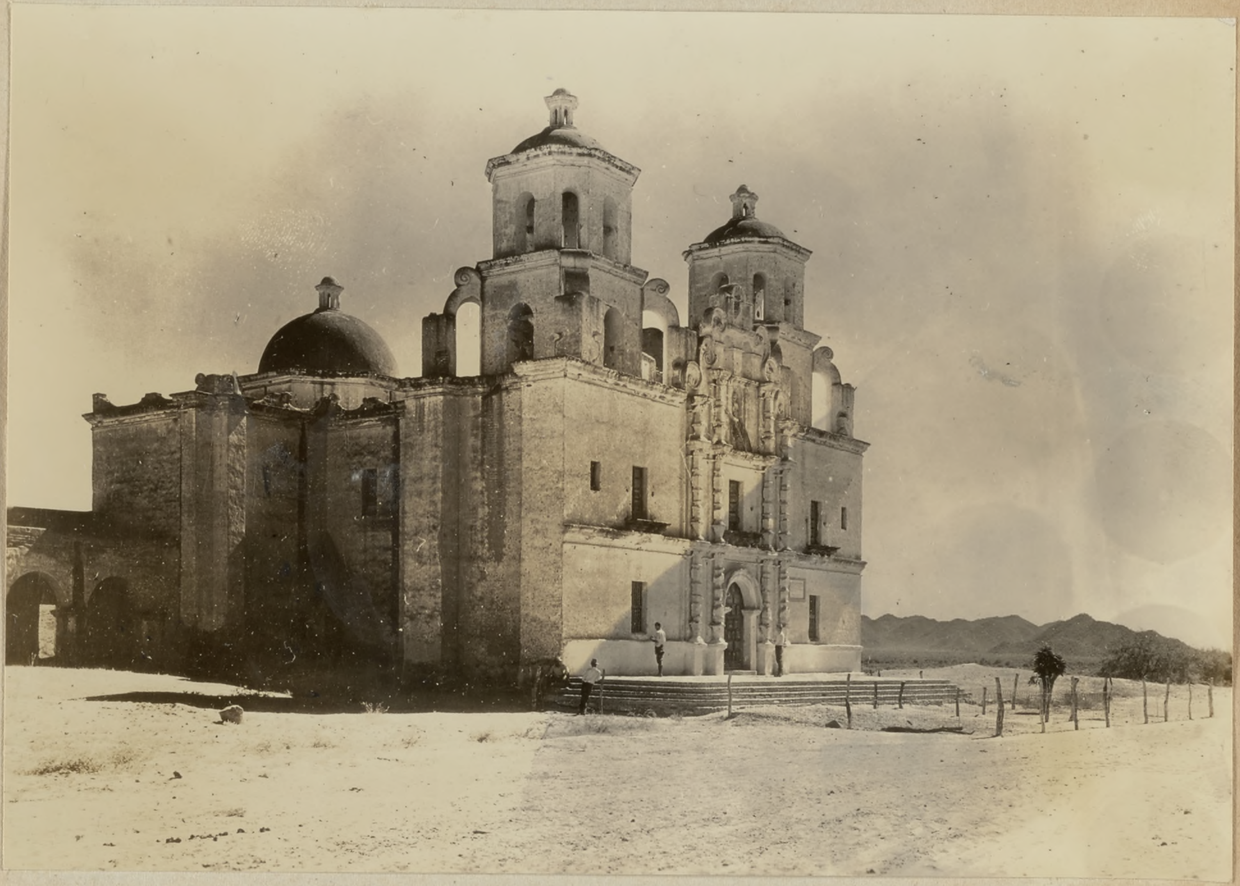
CEILINGS: Nave and Transepts - low brick domes between transverse brick arches. Crossing has semi-circular dome on high octagonal drum. Ceilings - plaster with plaster ornaments in center of domes. Shell ornamented ceiling over choir loft.

EXTERIOR: Plaster over brick. Plaster ornament on entrance facade.

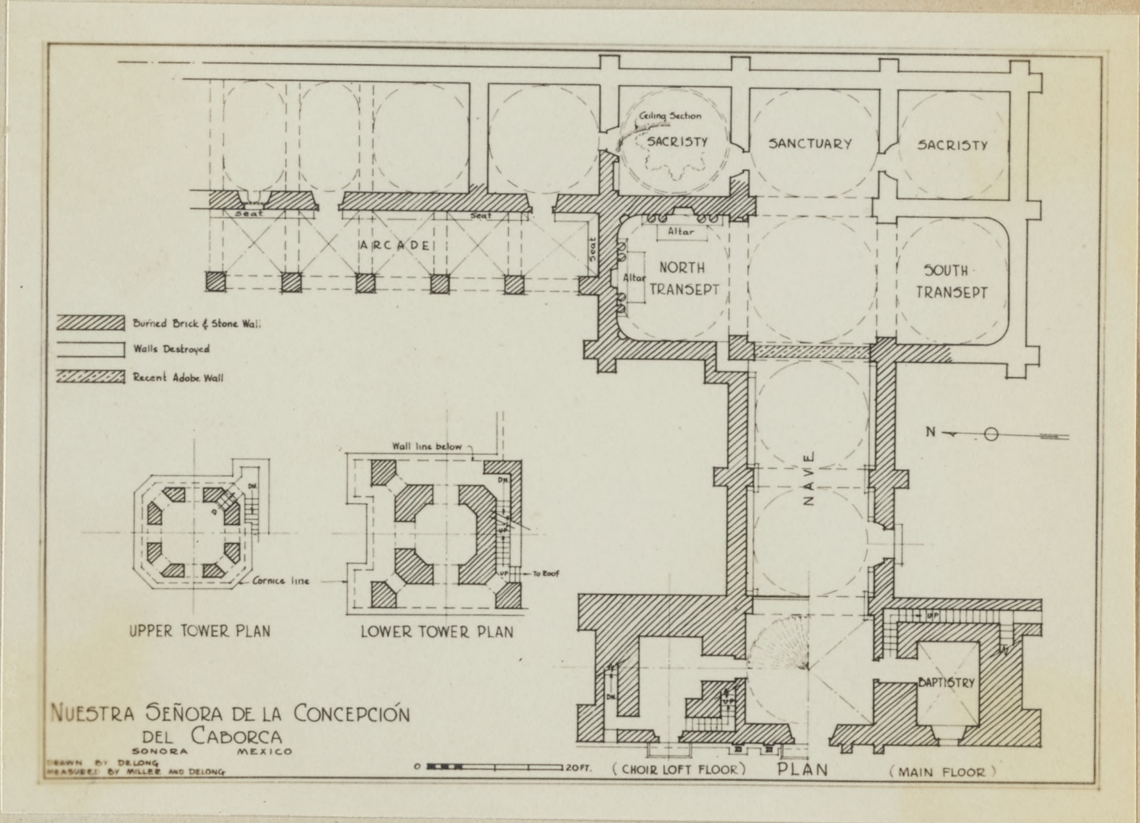
INTERIOR: Finish - whitewashed plaster. Whitewash covers early painted decorations on walls and ceiling.

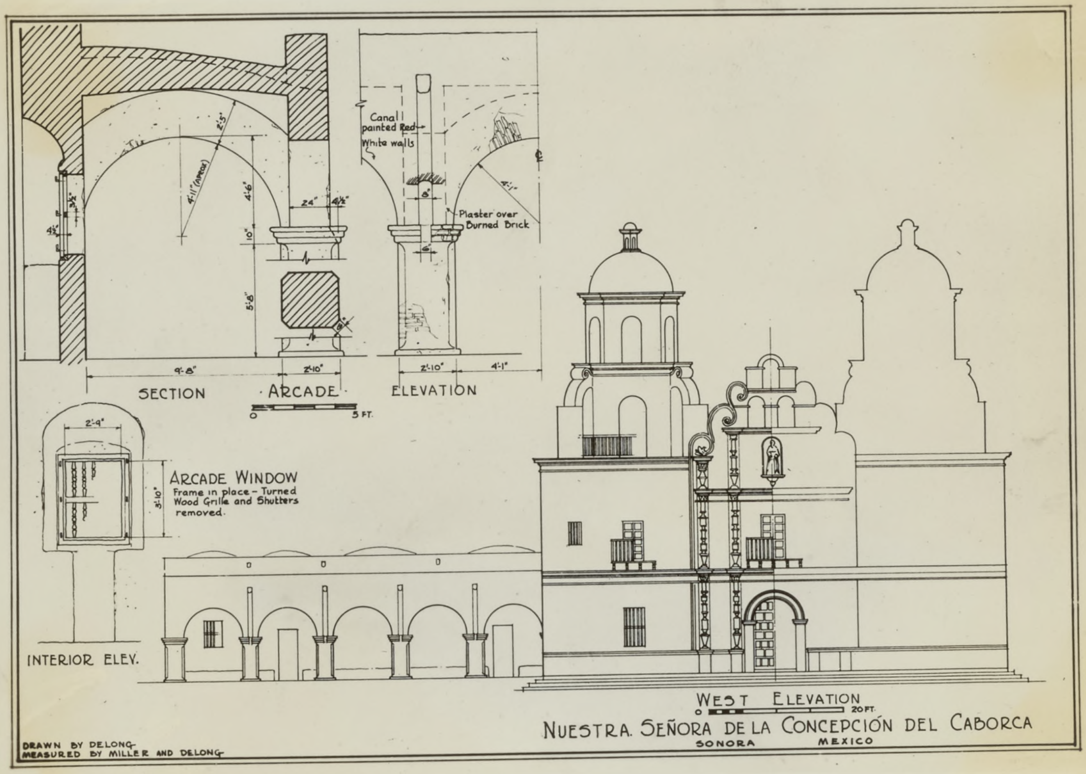
DOORS: Molded panel mesquite doors hung on wrought iron hinges.

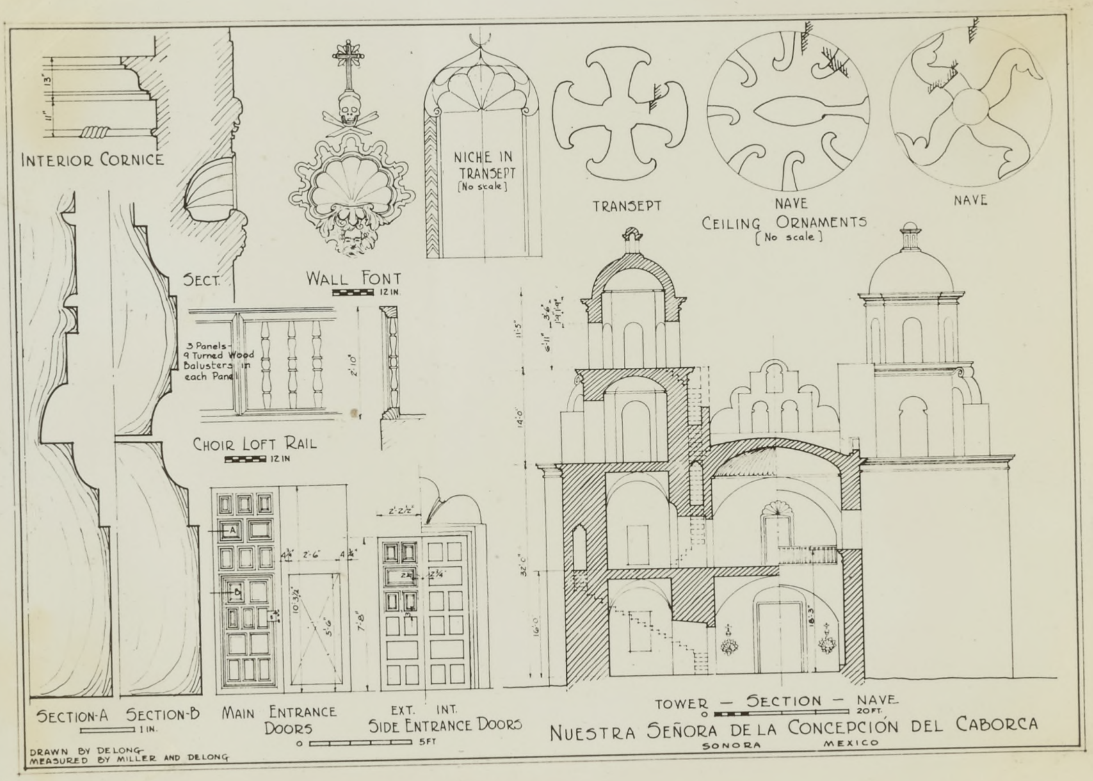
OUTLYING BUILDINGS: Mostly destroyed by river but a few foundations still traceable. A plastered brick arcade remains adjoining the rear north wall of church and the front wall of a row of rooms back of the arcade still stands. Series of groined brick vaults form the ceiling of the arcade.

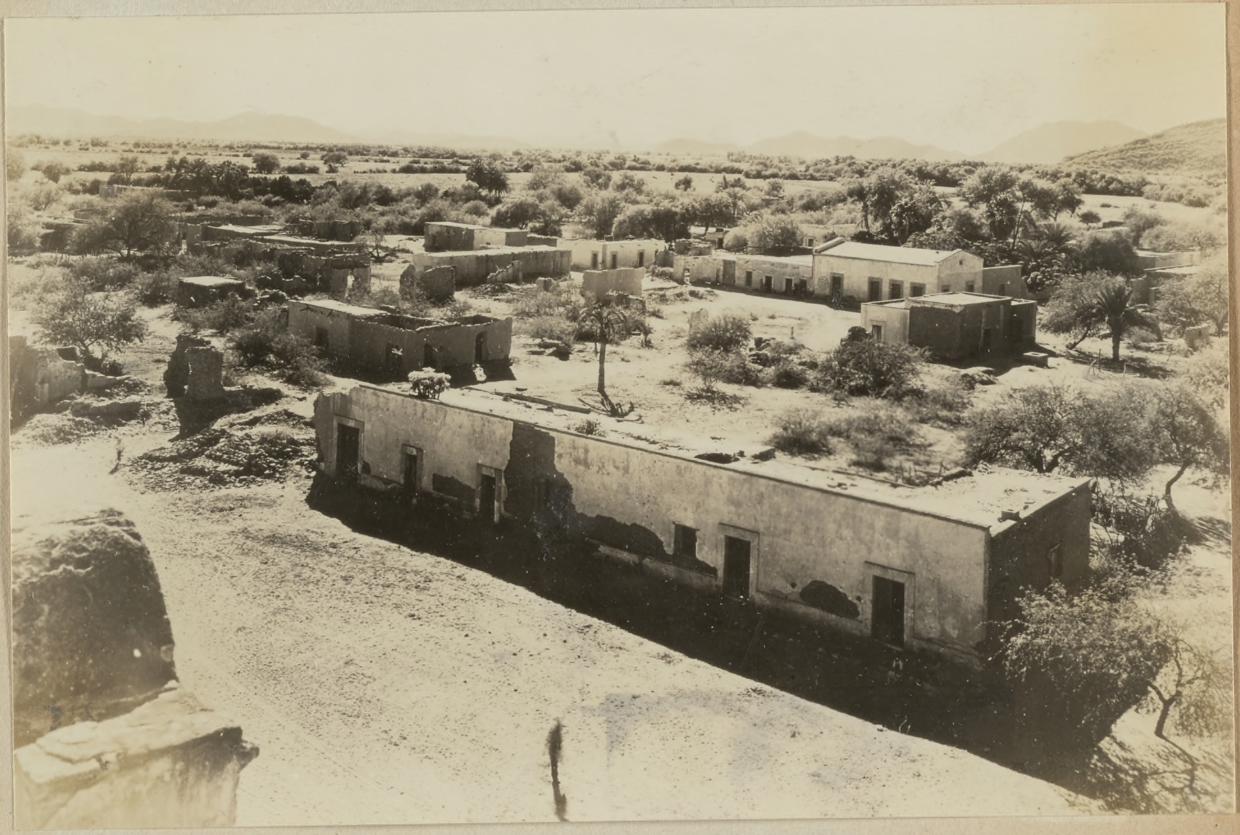


2696 Caborca. Church
from the Northwest.

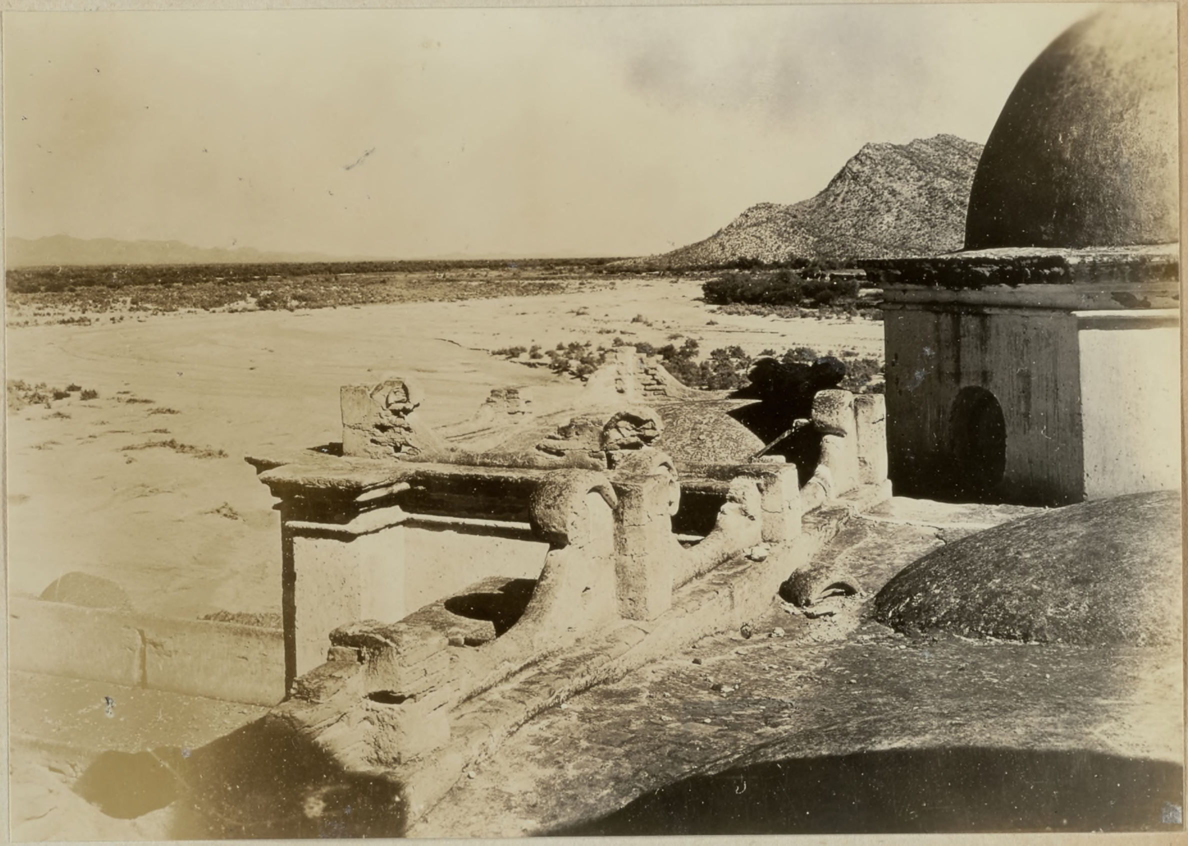

Ceiling Section
SACRISTY
SANCTUARY
SACRISTY
Seat
Seat
Seat
ARCADE
Altar
Altar
NORTH TRANSEPT
SOUTH TRANSEPT
Burned Brick & Stone Wall
Walls Destroyed
Recent Adobe Wall
N
NAVE
Wall line below
DN
UP
To Roof
Cornice line
UPPER TOWER PLAN
LOWER TOWER PLAN
BAPTISTRY
NUESTRA SEÑORA DE LA CONCEPCIÓN
DEL CABORCA
SONORA MEXICO
DRAWN BY DELONG
MEASURED BY MILLER AND DELONG
0 20 FT.
(CHOIR LOFT FLOOR) PLAN (MAIN FLOOR)


SECTION
ARCADE
ELEVATION
0
5 FT.
Canal painted Red
White walls
Plaster over Burned Brick
2'-5"
4'-11" (approx)
4'-6"
2'4"
4½"
10"
5'-8"
9'-8"
2'-10"
2'-10"
4'-1"
4'-1"
ARCADE WINDOW
Frame in place - Turned Wood Grille and Shutters removed.
2'-4"
3'-10"
INTERIOR ELEV.
WEST ELEVATION
0
20 FT.
NUESTRA SEÑORA DE LA CONCEPCIÓN DEL CABORCA
SONORA MEXICO
DRAWN BY DELONG
MEASURED BY MILLER AND DELONG

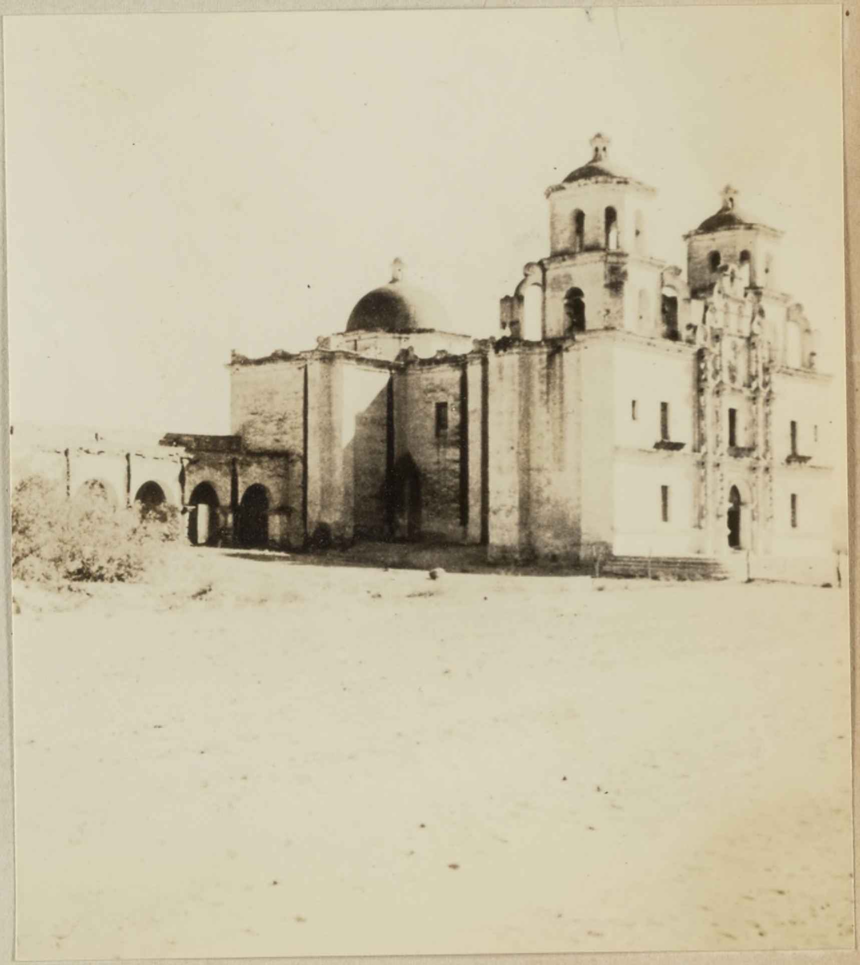

Interior Cornice
13"
11"
Sect.
Wall Font
12 in.
Niche in Transept
[No scale]
Transept
Nave
Nave
Ceiling Ornaments
[No scale]
3 Panels-
9 Turned Wood
Balusters in
each Panel
2'-10"
Choir Loft Rail
12 in.
2'-6"
4½"
10'-3½"
5'-6"
7'-8"
2'-2½"
11'-5"
14'-0"
32'-0"
16'-0"
18'-3"
Section-A
Section-B
1 in.
Main Entrance Doors
Ext.
Int.
Side Entrance Doors
0
5 ft
Tower — Section — Nave
0
20 ft.
Nuestra Señora de la Concepción del Caborca
Sonora
Mexico
Drawn by DeLong
Measured by Miller and DeLong



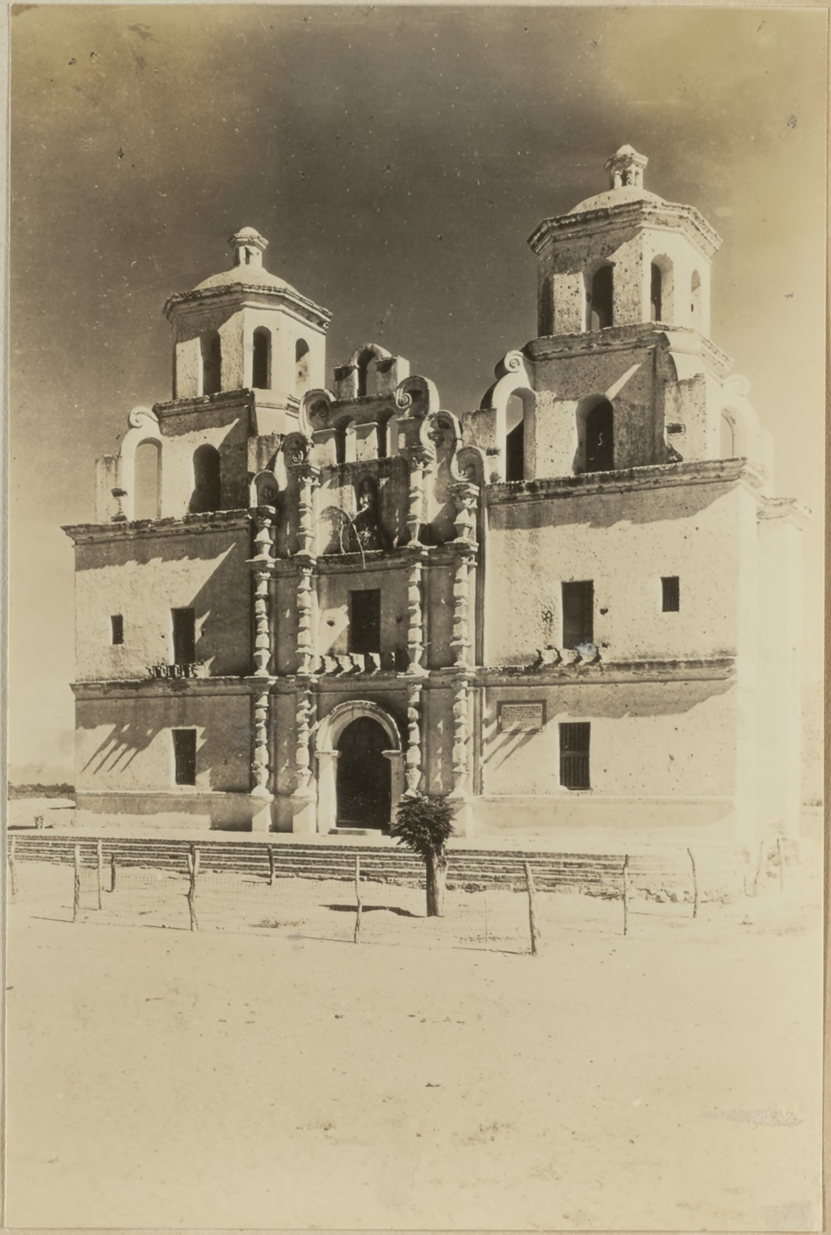
2728 Caborca. From Church Roof.



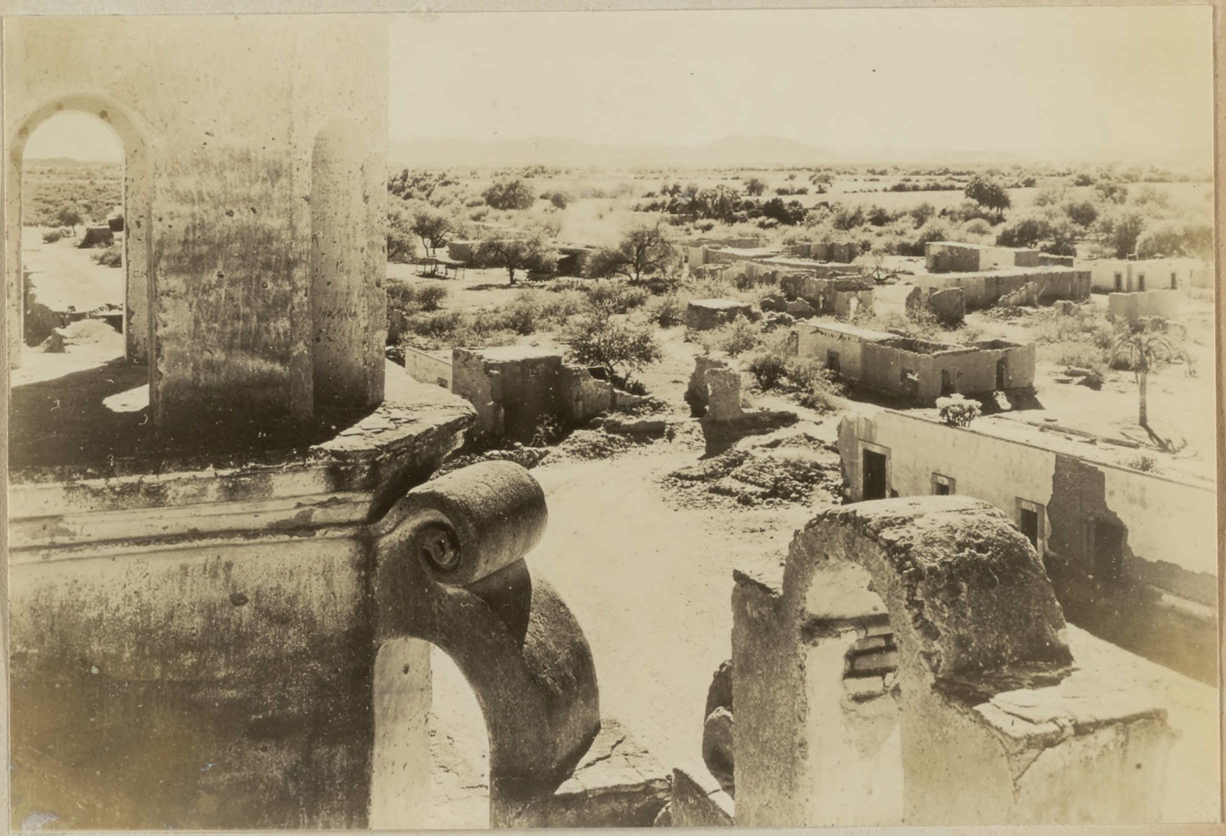
2729 Caborca. Roof and
part of Dome from Southwest.



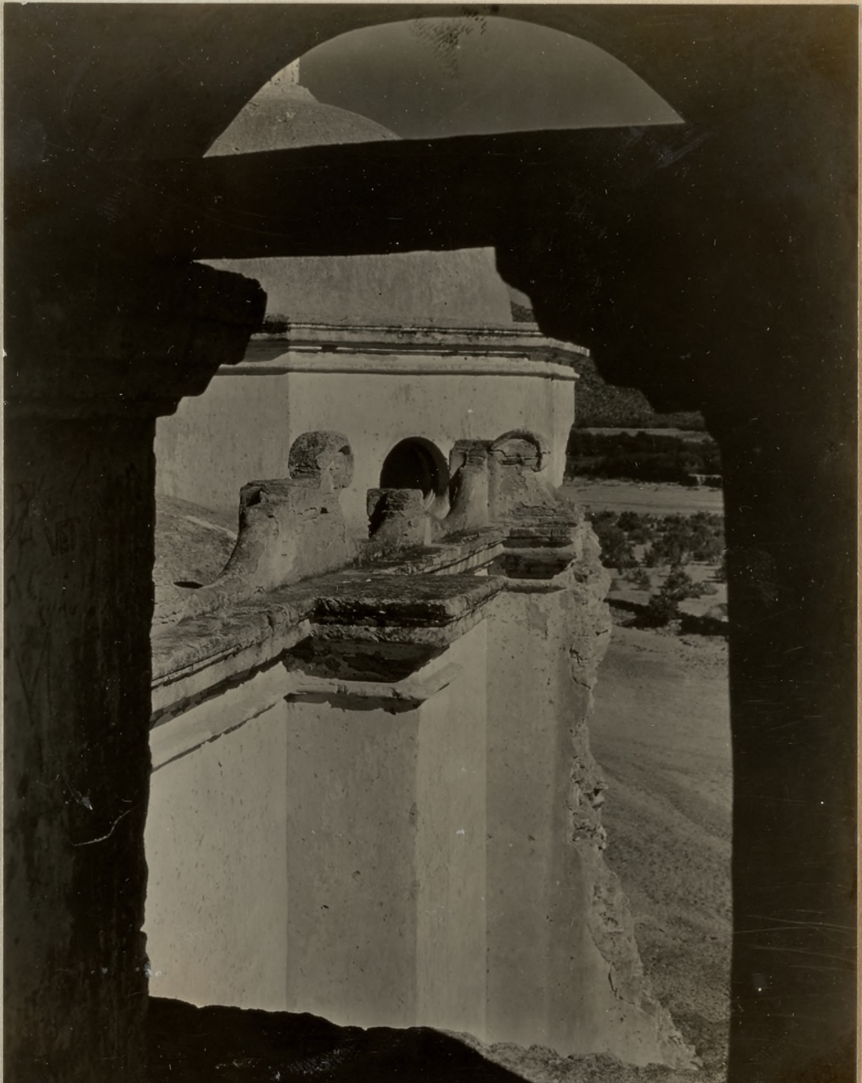
3497 Caborca. Showing
Architectural Structure.



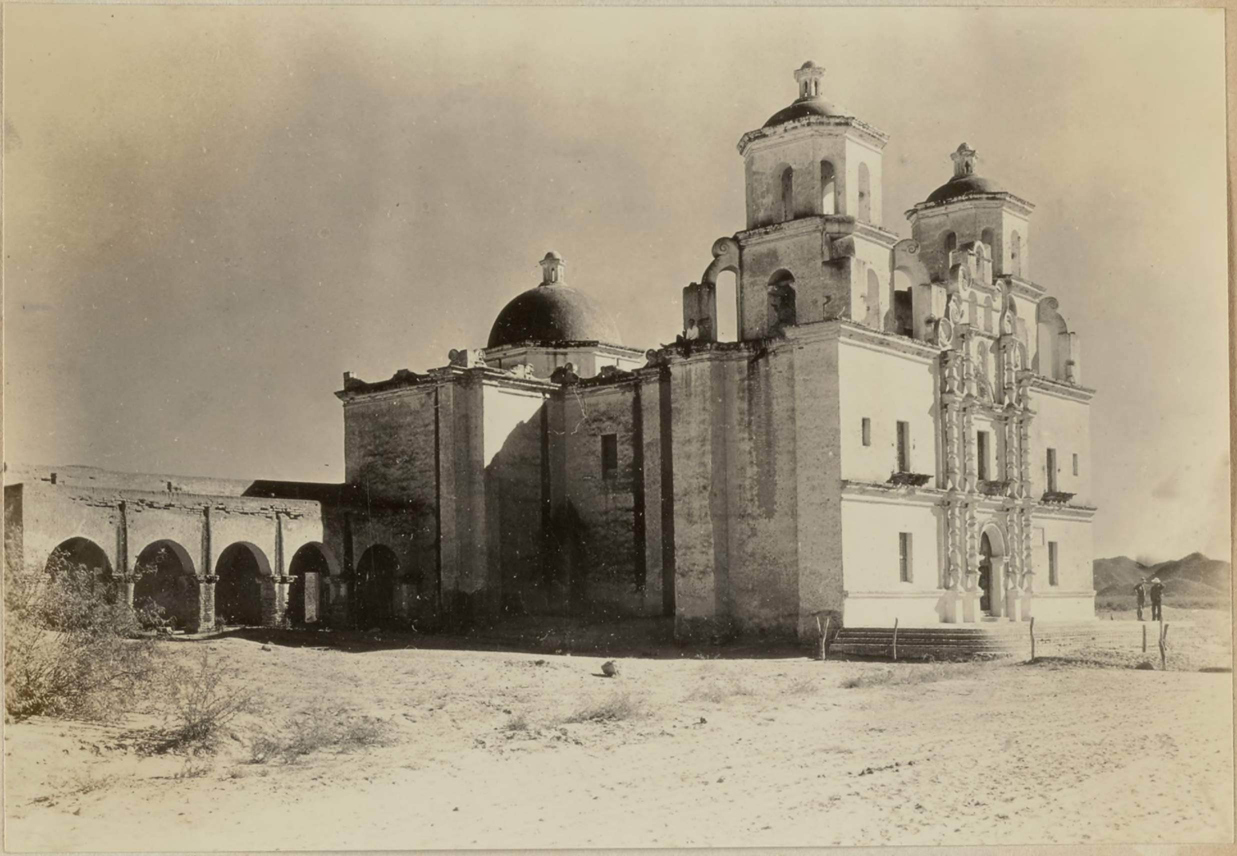
2730 Caborca. View from the Southwest.



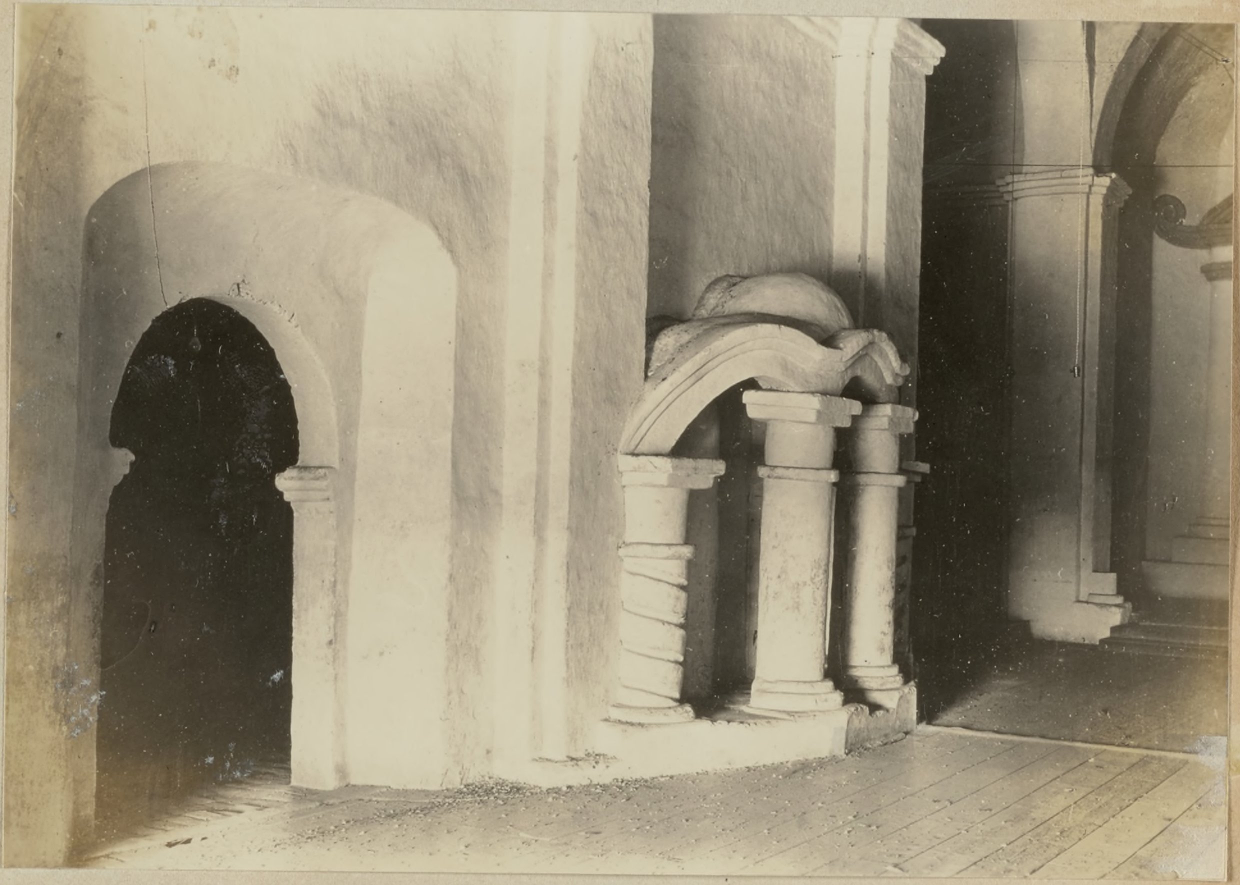
2731 Caborca. View from
North Bell Tower looking
Southwest.



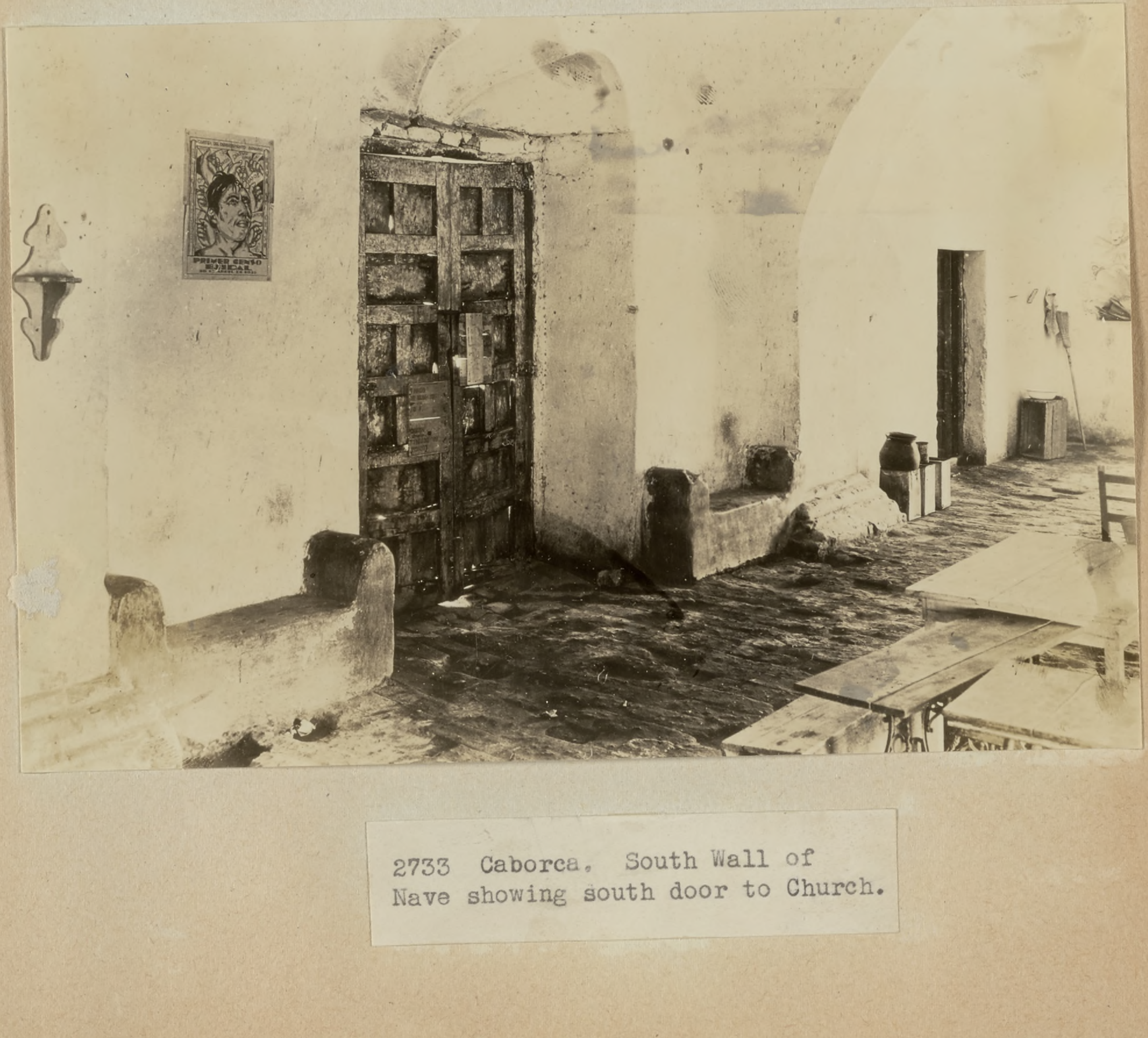
2739 Caborca. View from South Bell Tower, looking east.



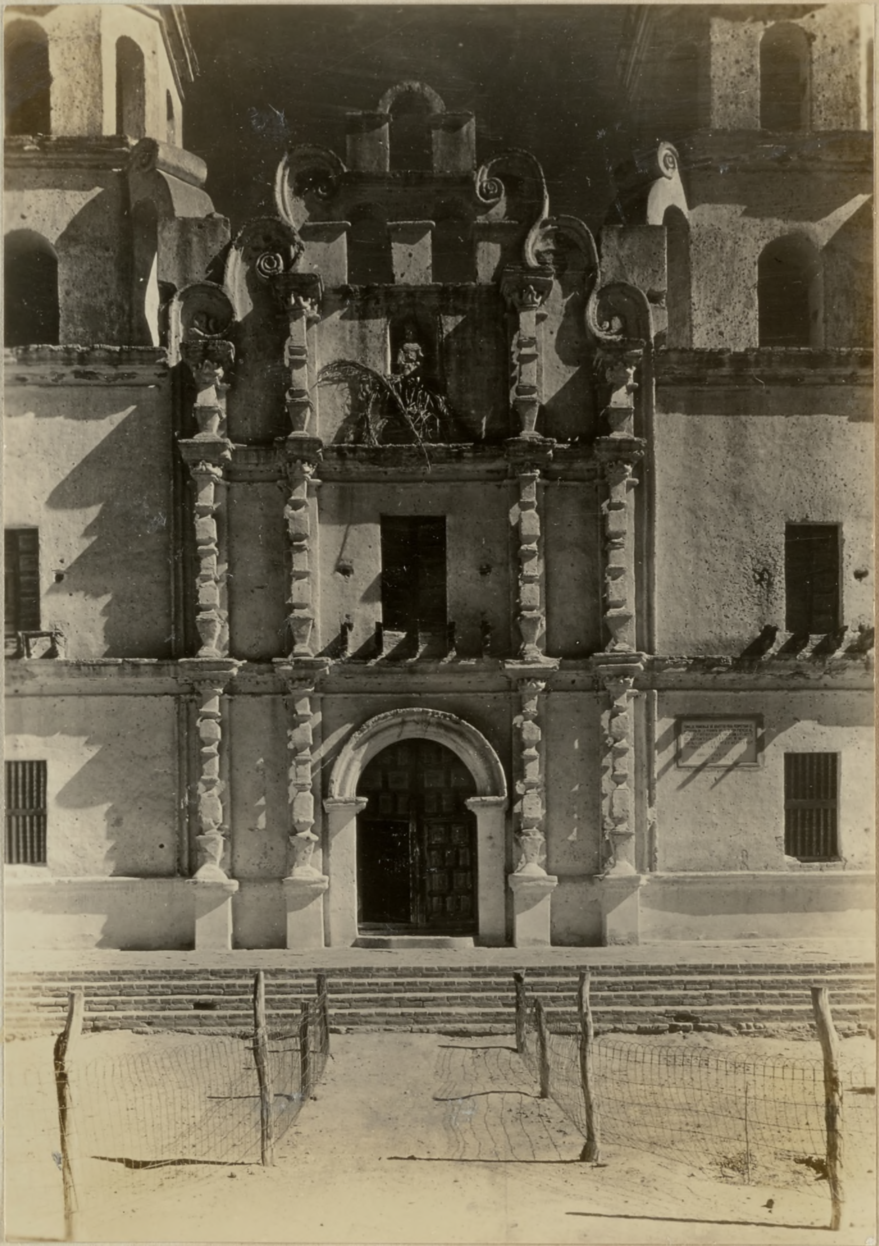
2754



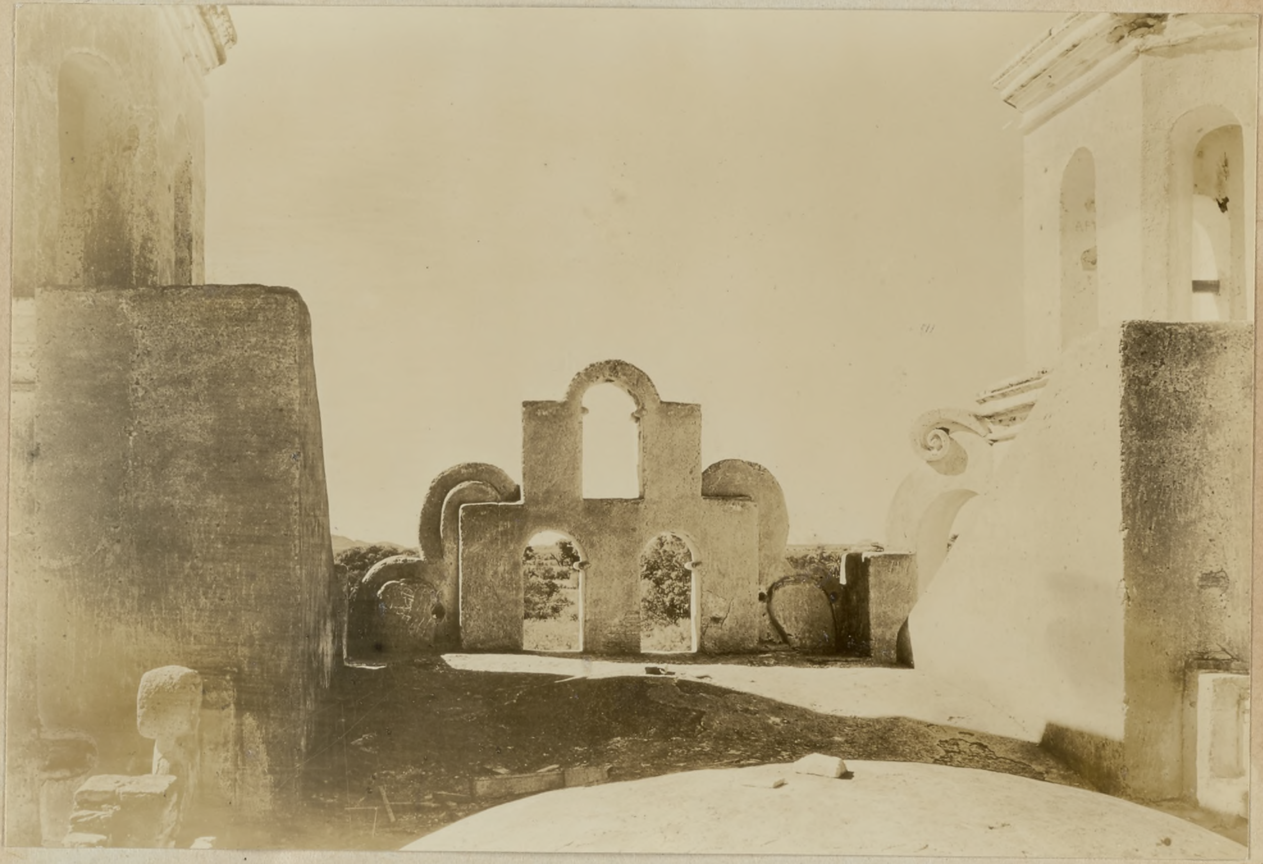
2753 Caborca. Church
from the Northwest.



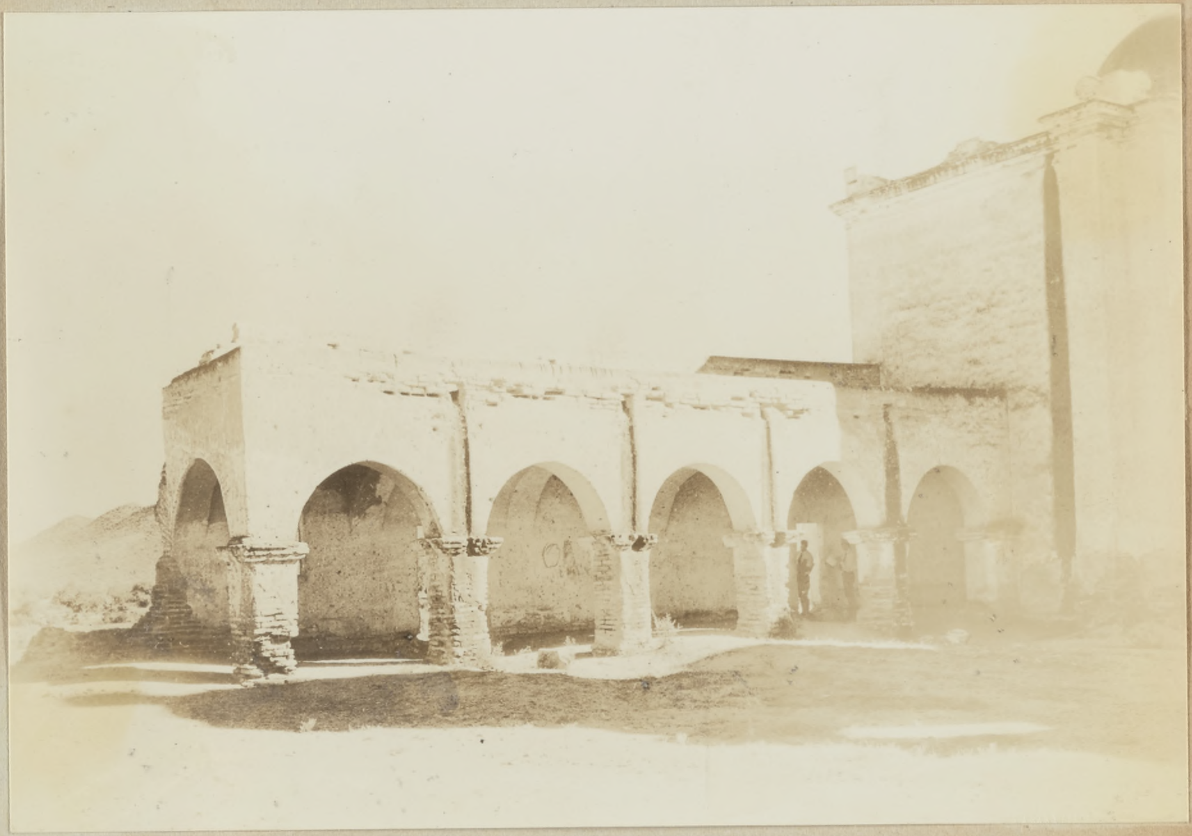
2733 Caborca, South Wall of
Nave showing south door to Church.



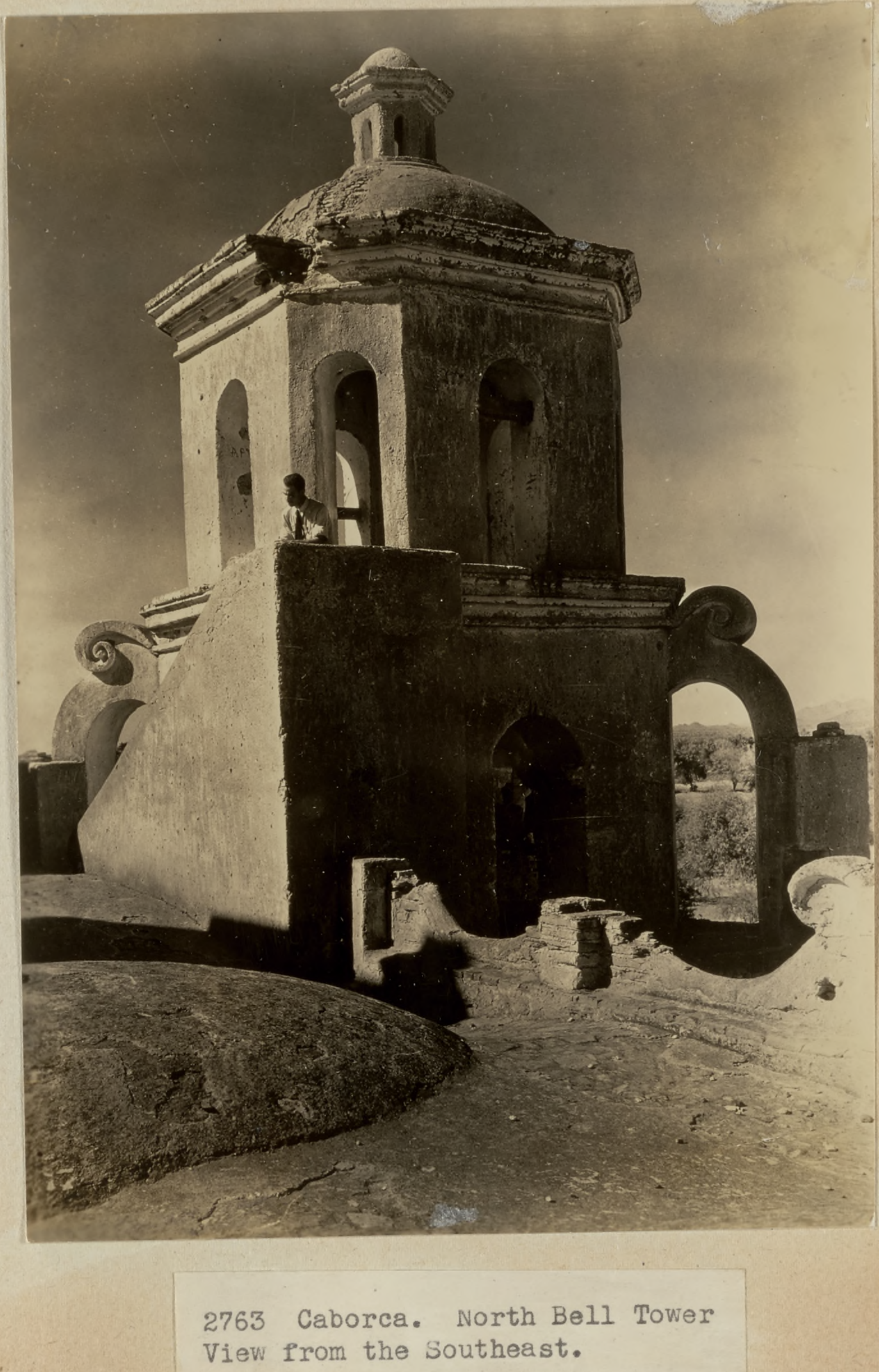
2778 Caborca.
View from West.



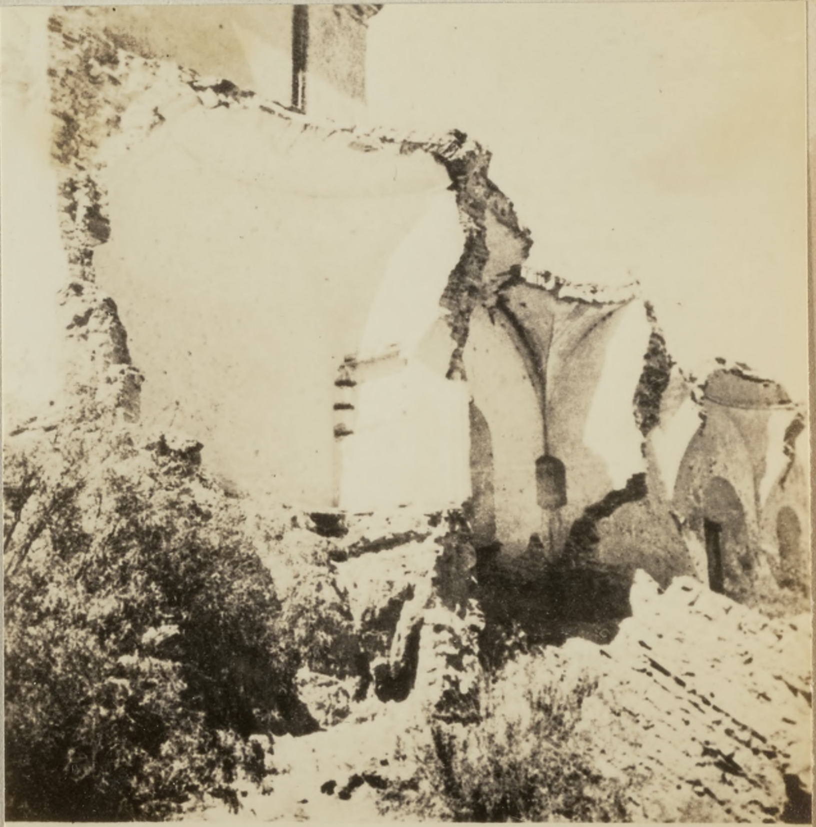
2825 Caborca. Rear view of Flying Foe from East, showing Bell Towers.



2762 Caborca. Cloister
from the Northwest.



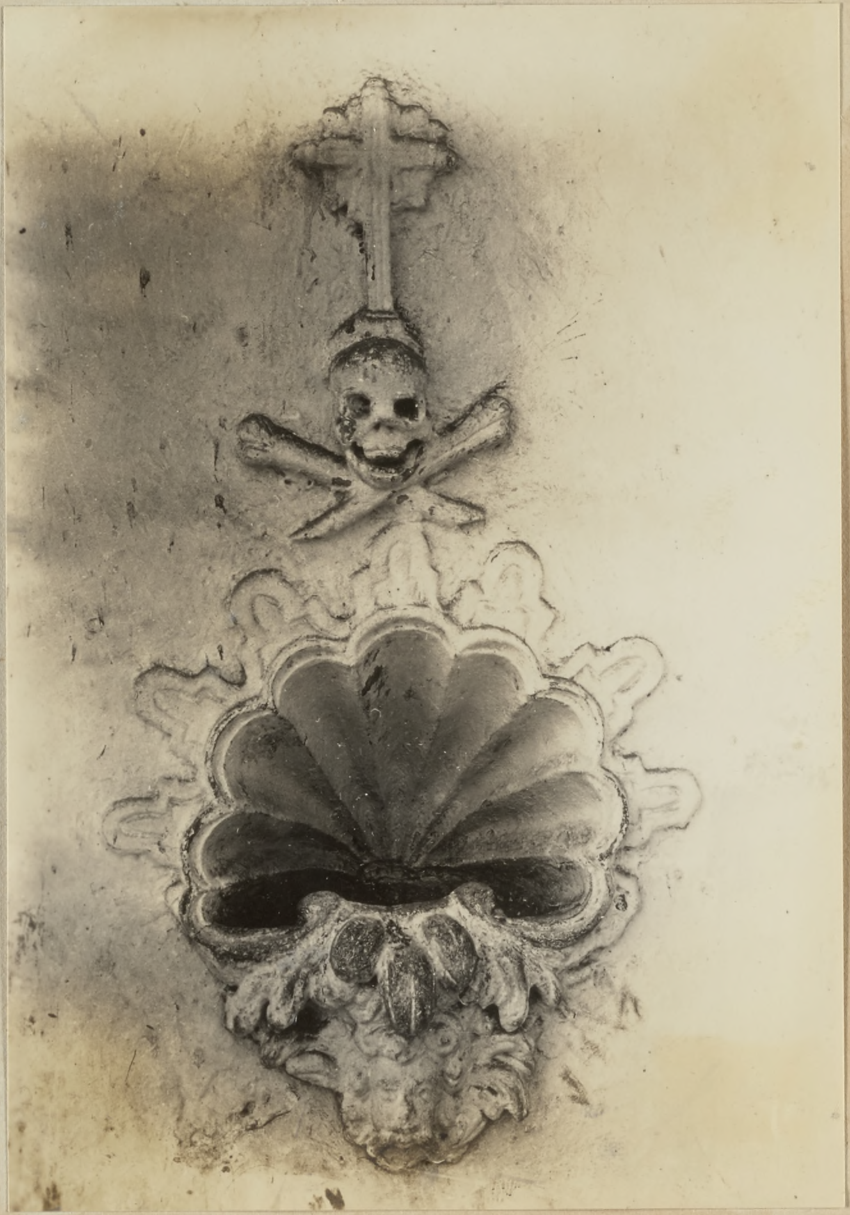
2763 Caborca. North Bell Tower
View from the Southeast.



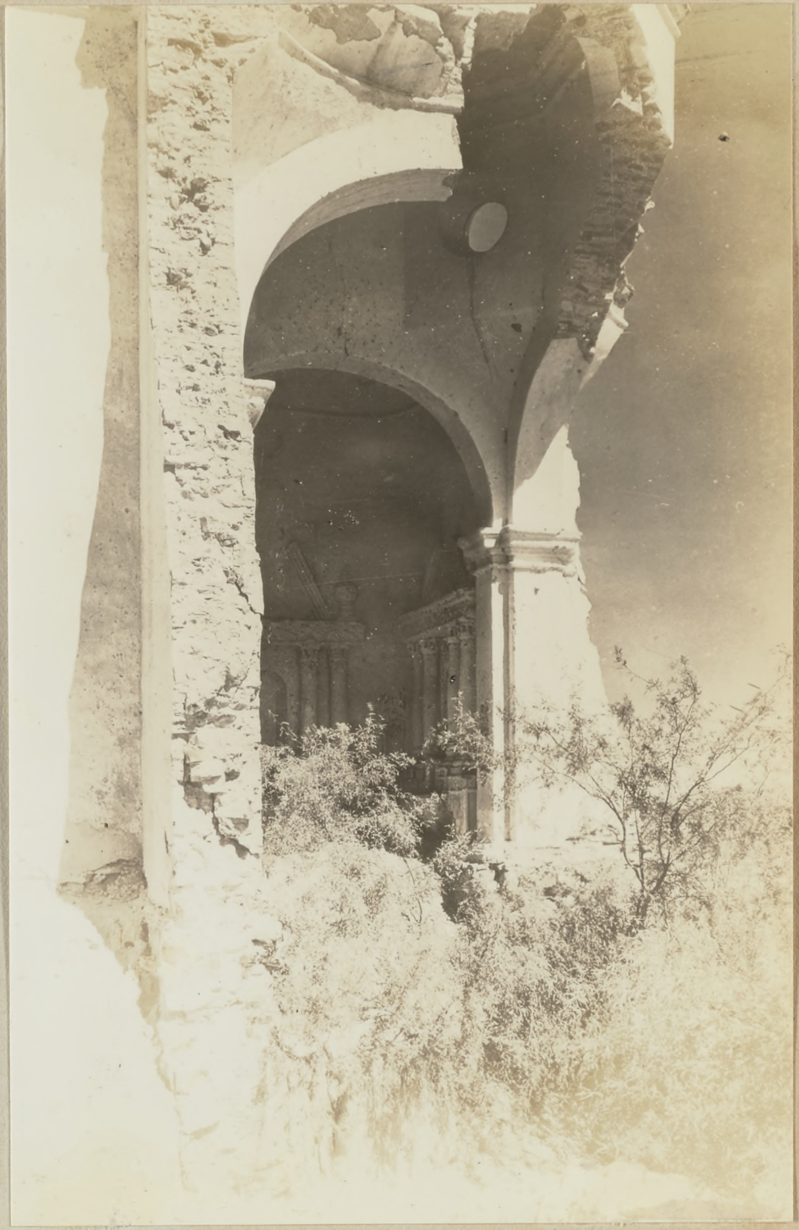
NUESTRA SENORA de la CONCEPCION del CABORCA

In spite of the sturdy Franciscan construction, flood waters have destroyed portions of the rear.

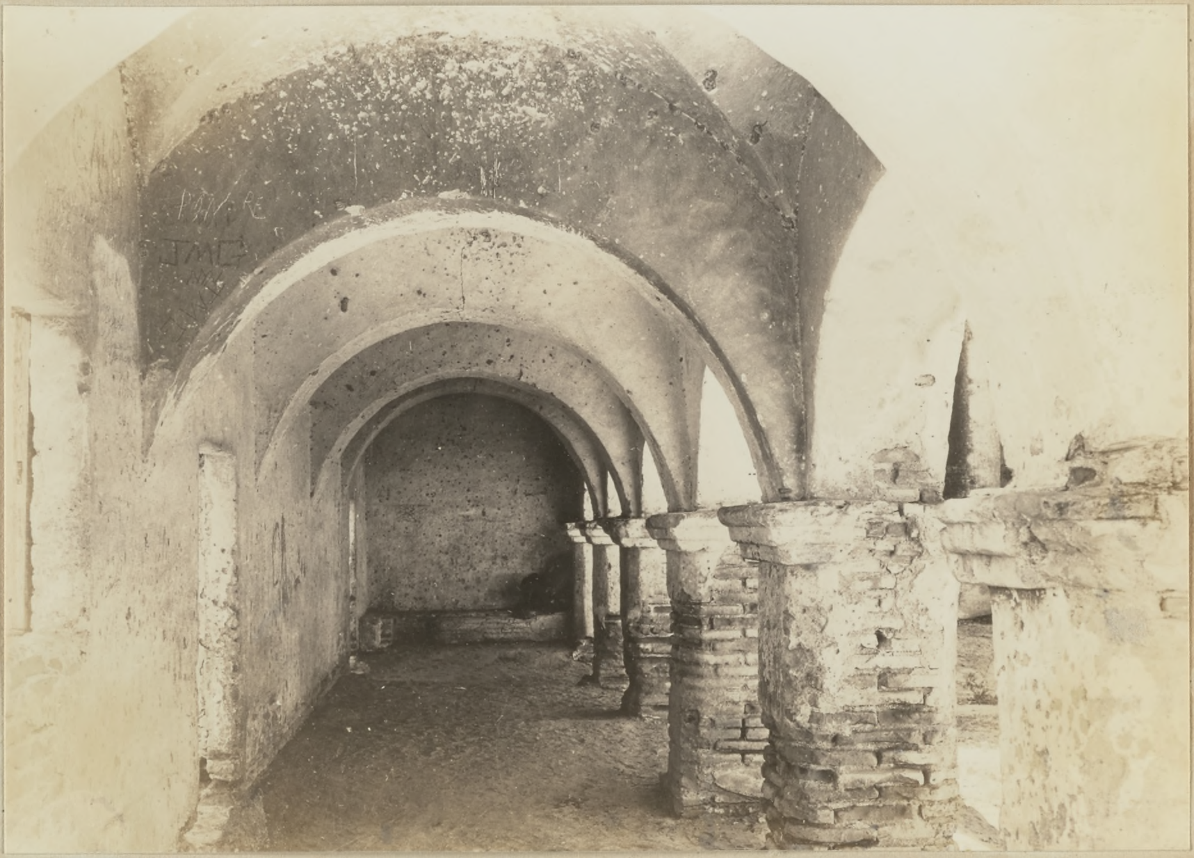
Oct. 21, 1935



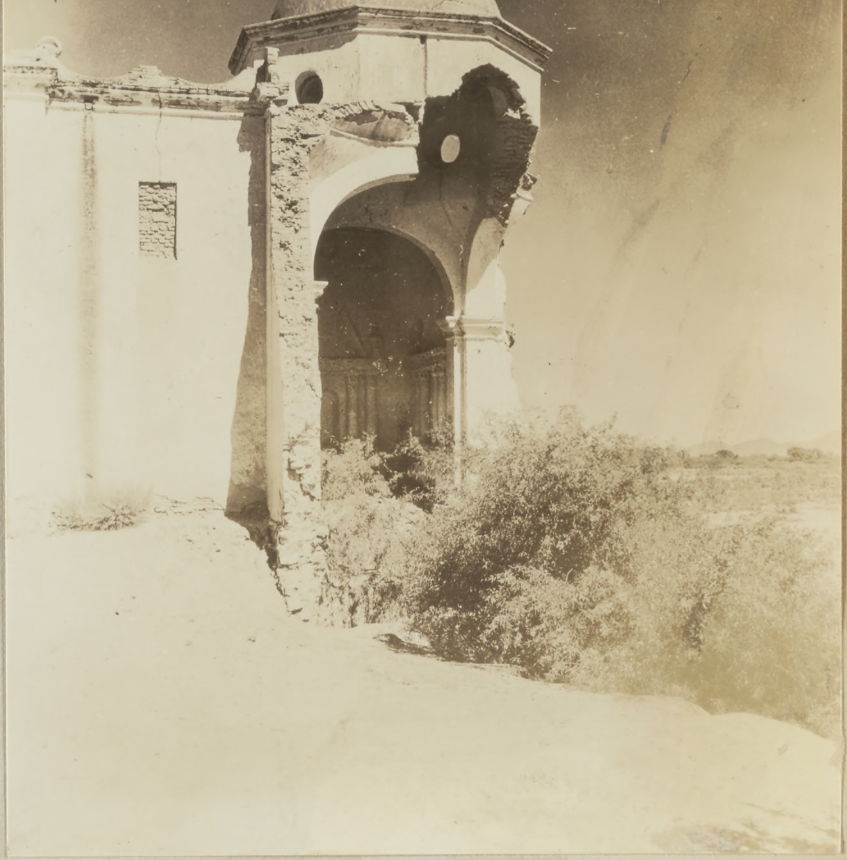
2668 Caborca. Detail of Holy Water Fount.



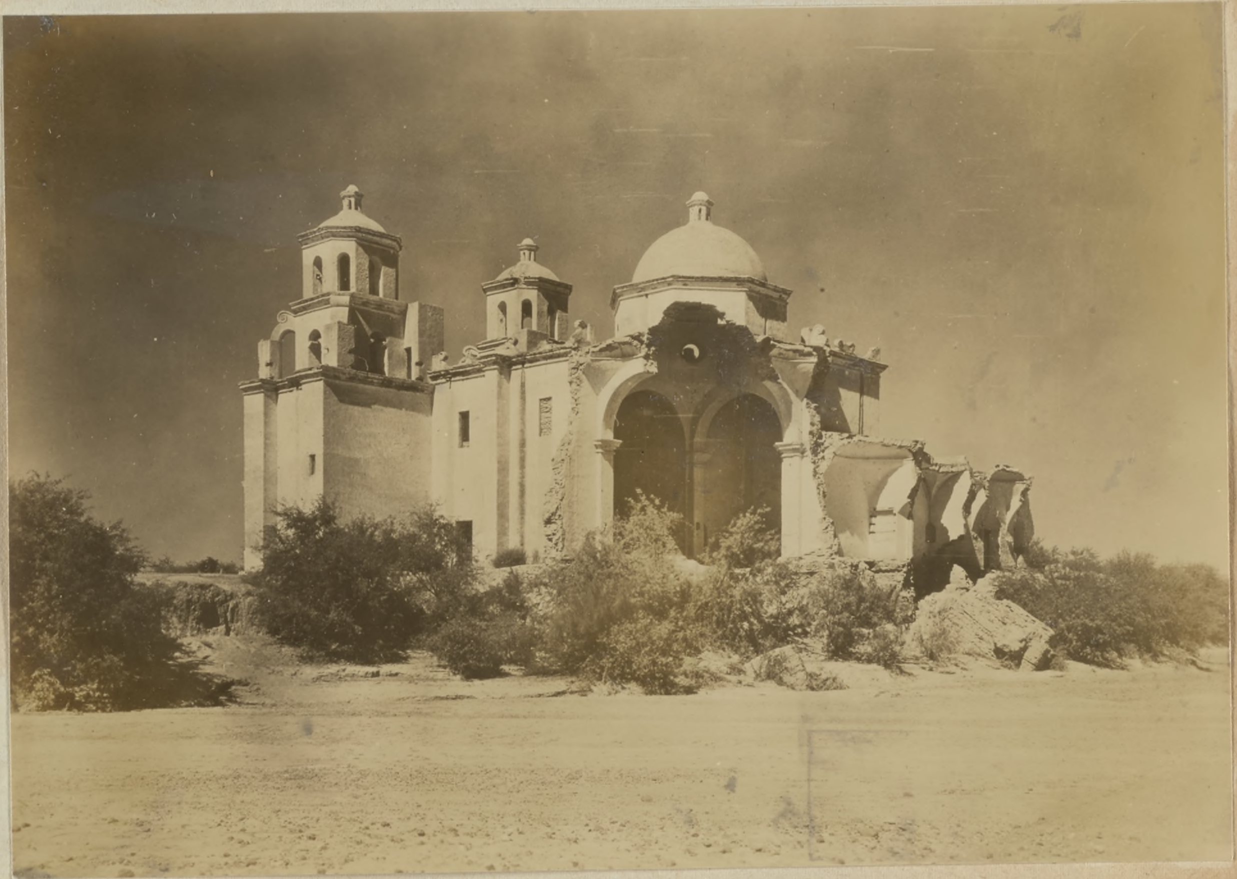
2719 Caborca. View from the Southwest, showing North Transept Arch and ruins of Sanctuary.



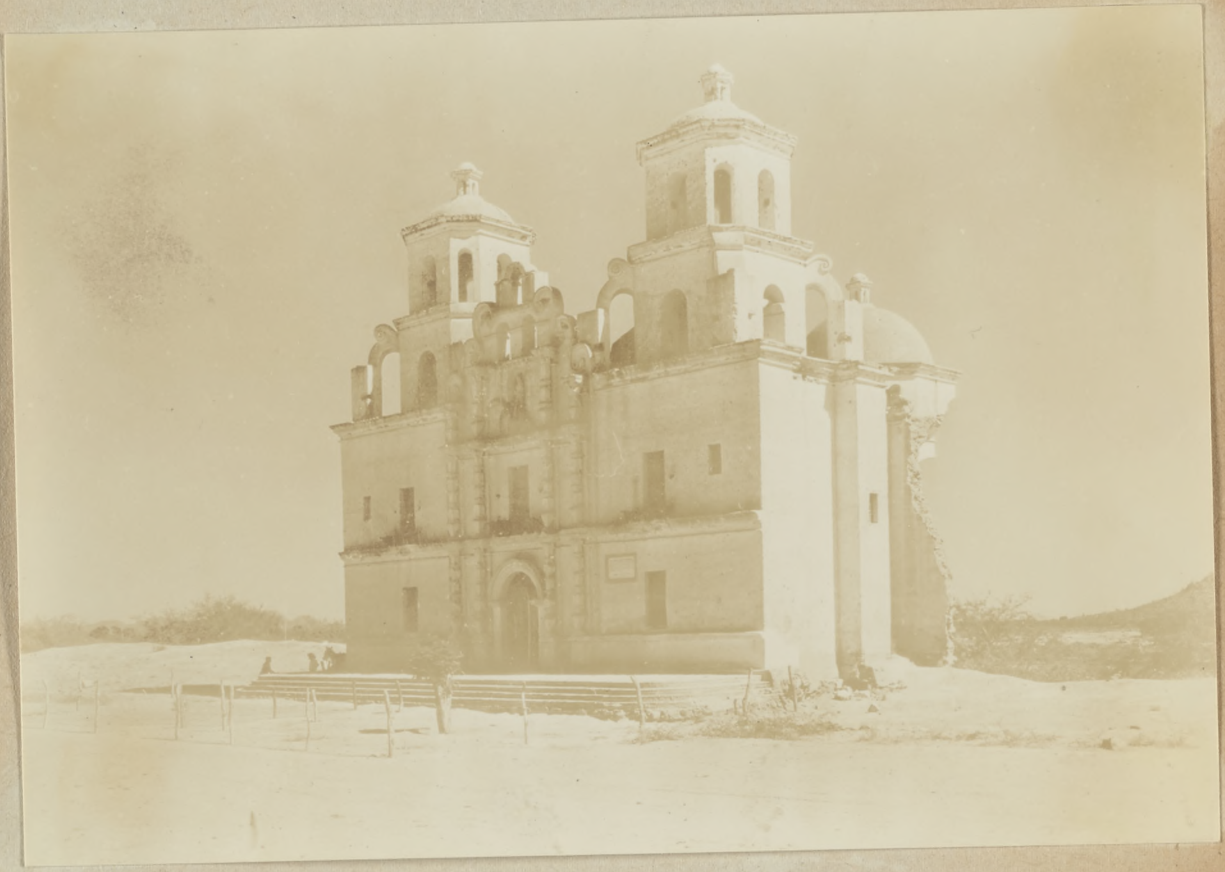
2718 Caborca. Cloisters.
View from the North.



2717 Caborca. Ruins and North Transept from the South.



2711 Caborca. Church from the Southwest.



2710 Caborca. Church
from the Southwest.

SAN DIEGO DEL PITIQUITO

SAN DIEGO del PITIQUITO

CONDITION OF CHURCH: Fairly well preserved.

FOUNDATIONS: Rubble stone in cement.

FLOORS: Brick, now covered by newer wood floor.

WALLS: Burned brick and stone with brick facing and molded brick cornice.

CEILINGS: Barrel-vaulted ceiling in Nave and Baptistry. Half dome over Sanctuary. Pear-shaped dome on pendentives over the crossing.

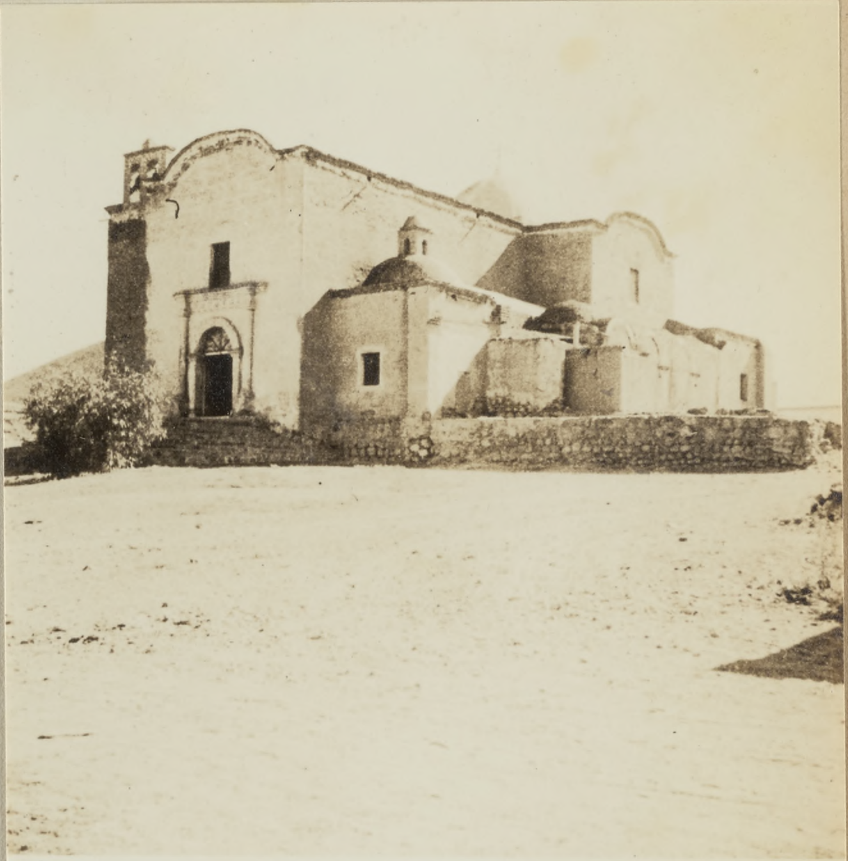
EXTERIOR: Finish - plaster on brick - whitewashed. Painted decorations around entrance.

ARCADE: Burned brick piers and arches with vaulted ceilings between transverse arches.

INTERIOR: Finish - whitewashed plaster. Earlier painted decorations now covered with whitewash.

DOORS: Panelled mesquite doors hung on iron pins.

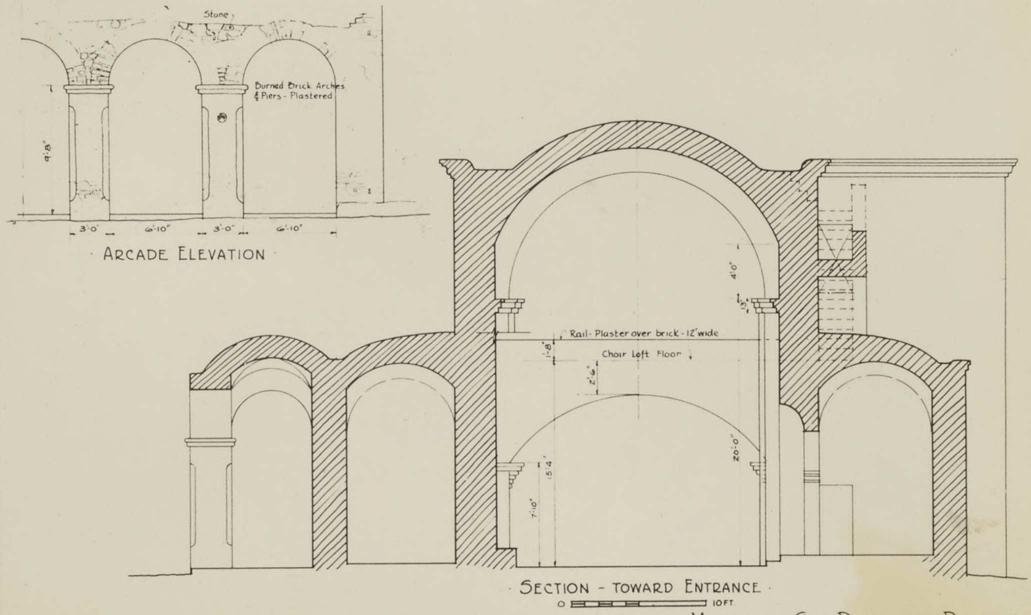
OUTLYING BUILDINGS: Foundations of rooms and continuation of arcade traceable adjoining south wall at front of church. Evidence of other rooms adjoining rear of church.



SAN DIEGO del PITIQUITO

The small domes and arcaded corridor are interesting features of this mission. Oct. 22, 1935

3494

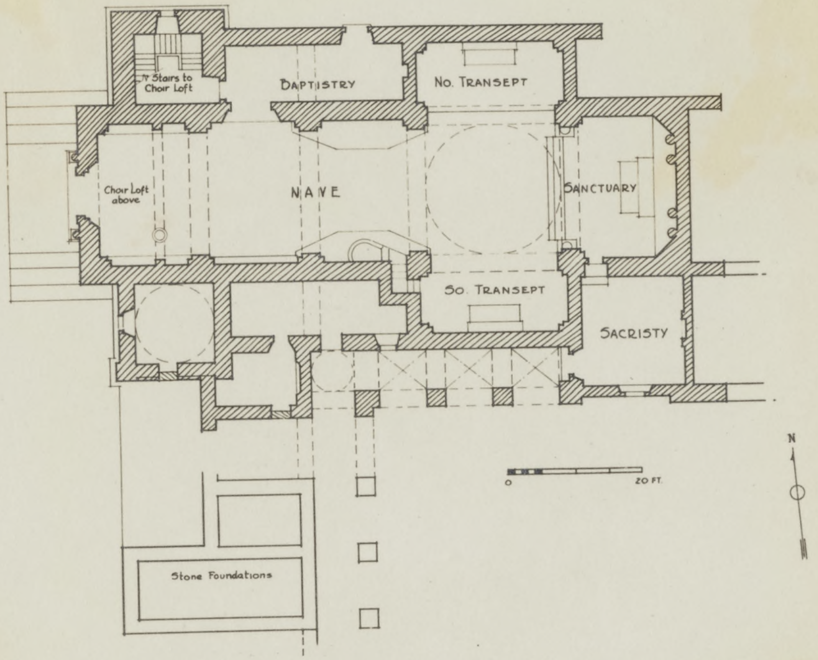


ARCADE ELEVATION

SECTION - TOWARD ENTRANCE

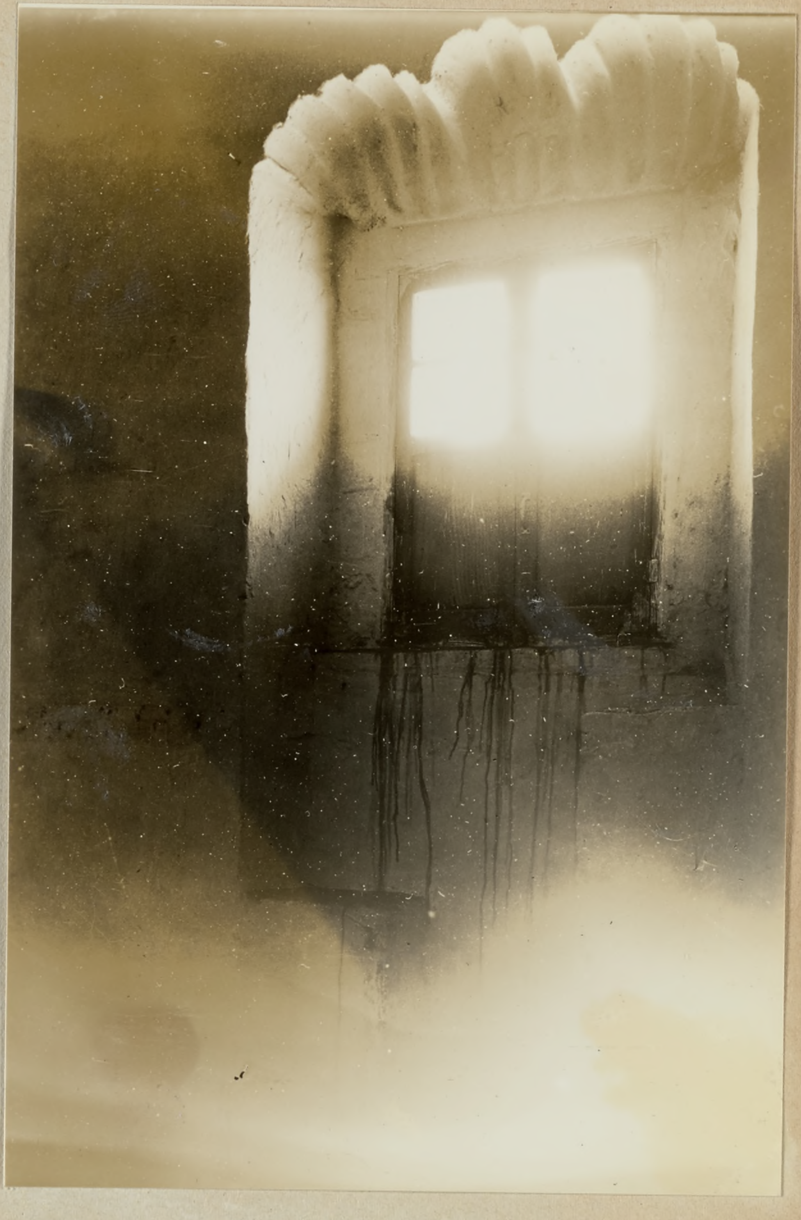
MISSION SAN DIEGO DEL PITIQUITO
SONORA MEXICO

MEASURED AND DRAWN BY DELONG

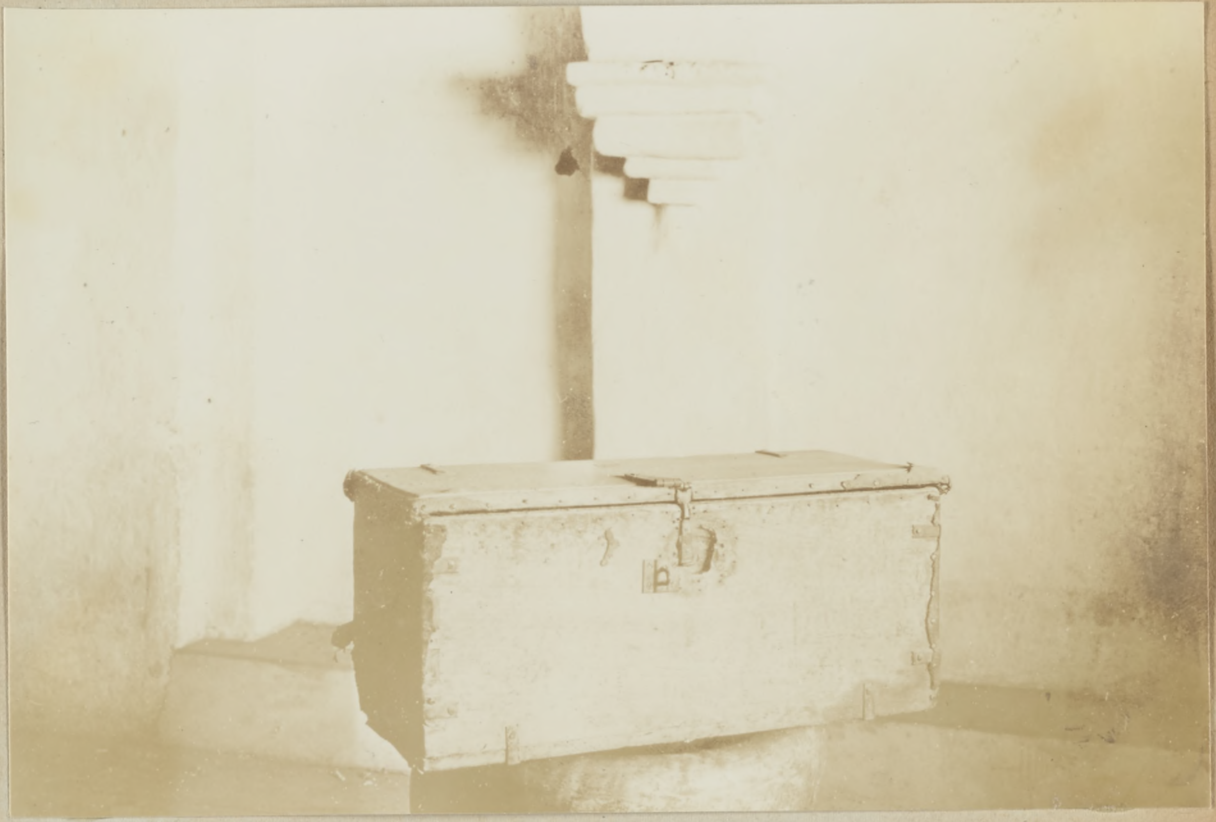


MISSION SAN DIEGO DEL PITIQUITO
SONORA MEXICO

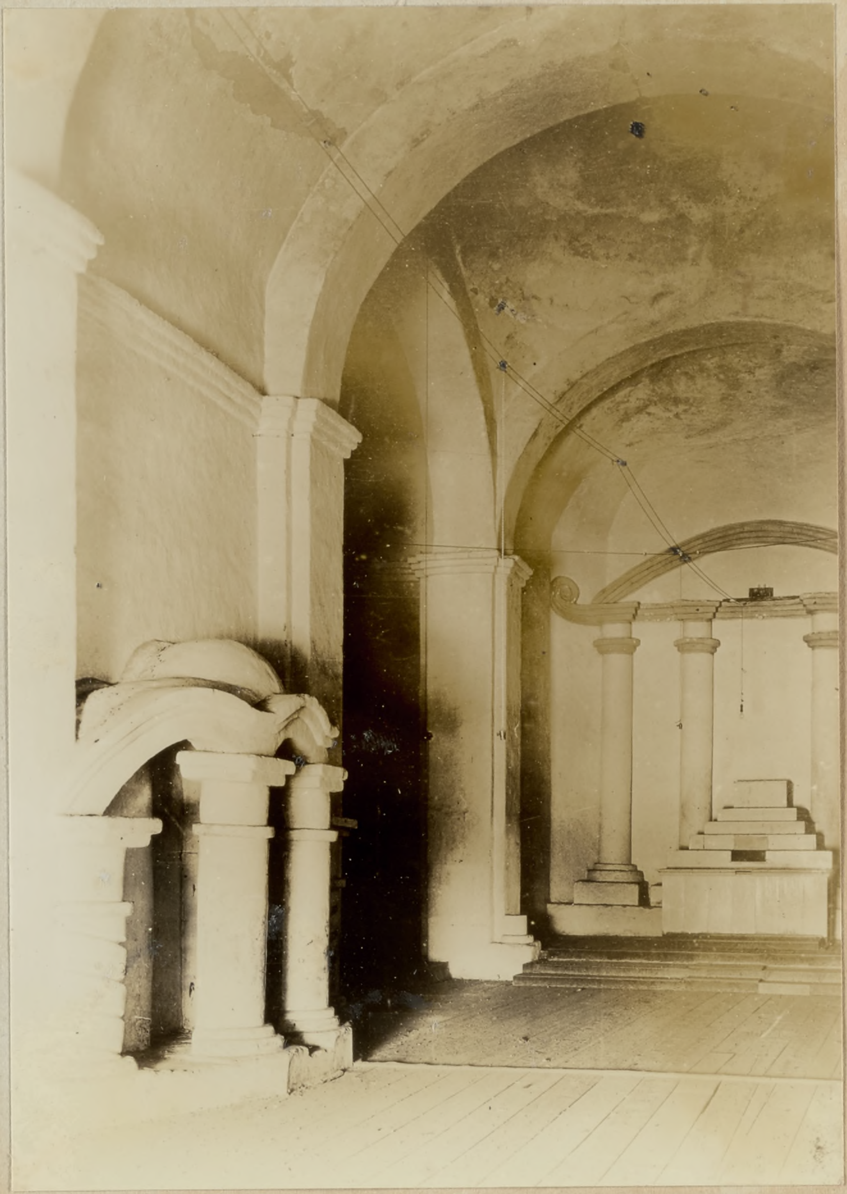
DRAWN BY DE LONG
MEASURED BY MILLER AND DE LONG



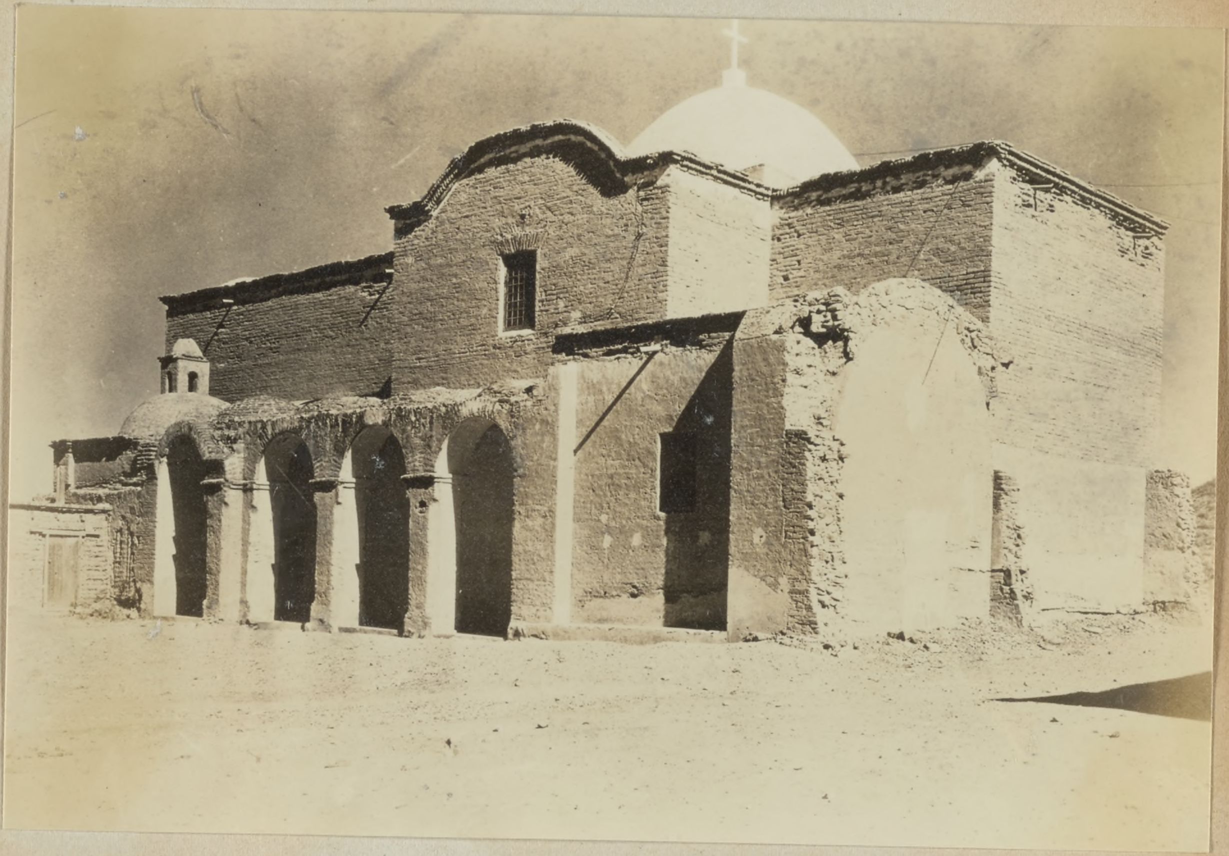
2705 Pitiquito. View of
Sacred Window from the North.



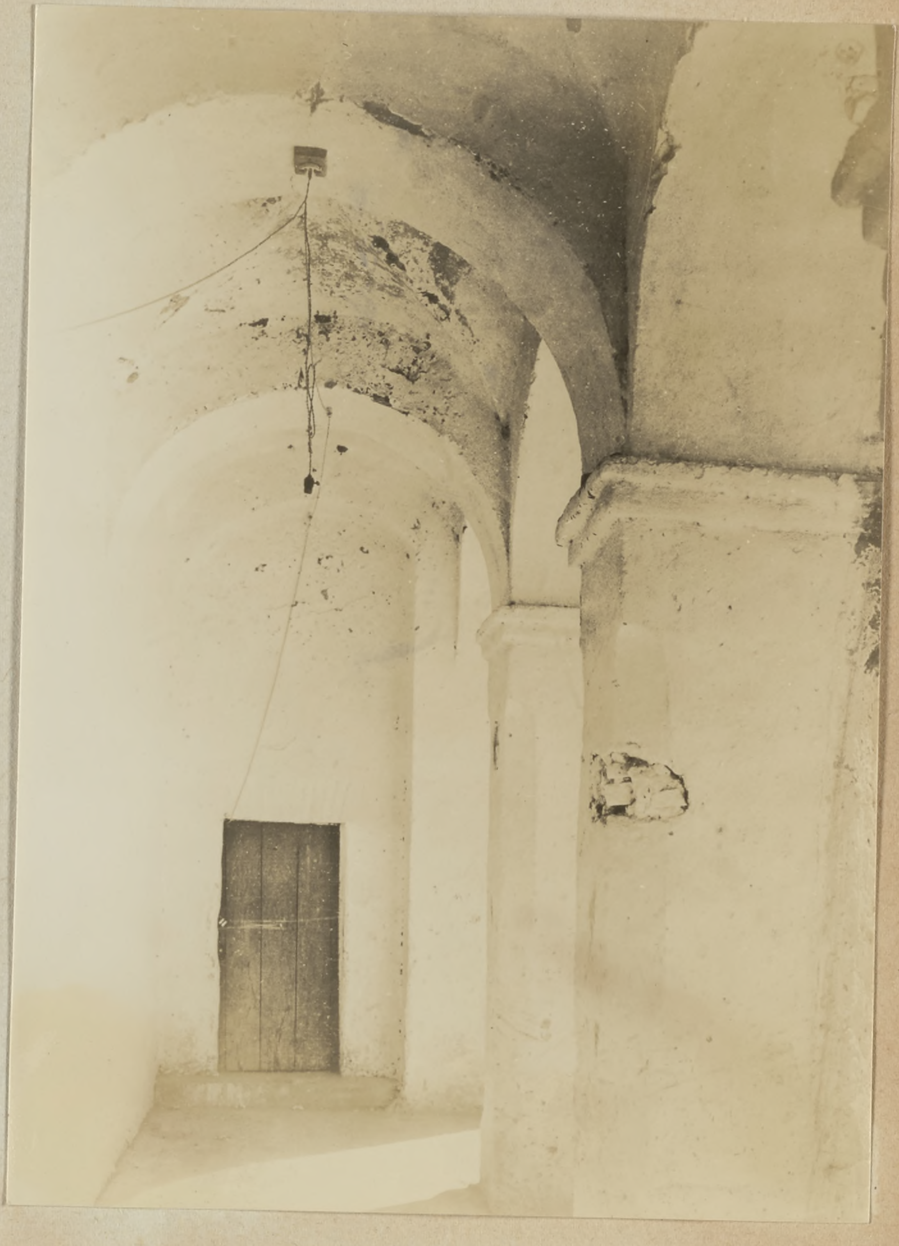
2725 Pitiquito. Wooden chest formerly covered with black leather.



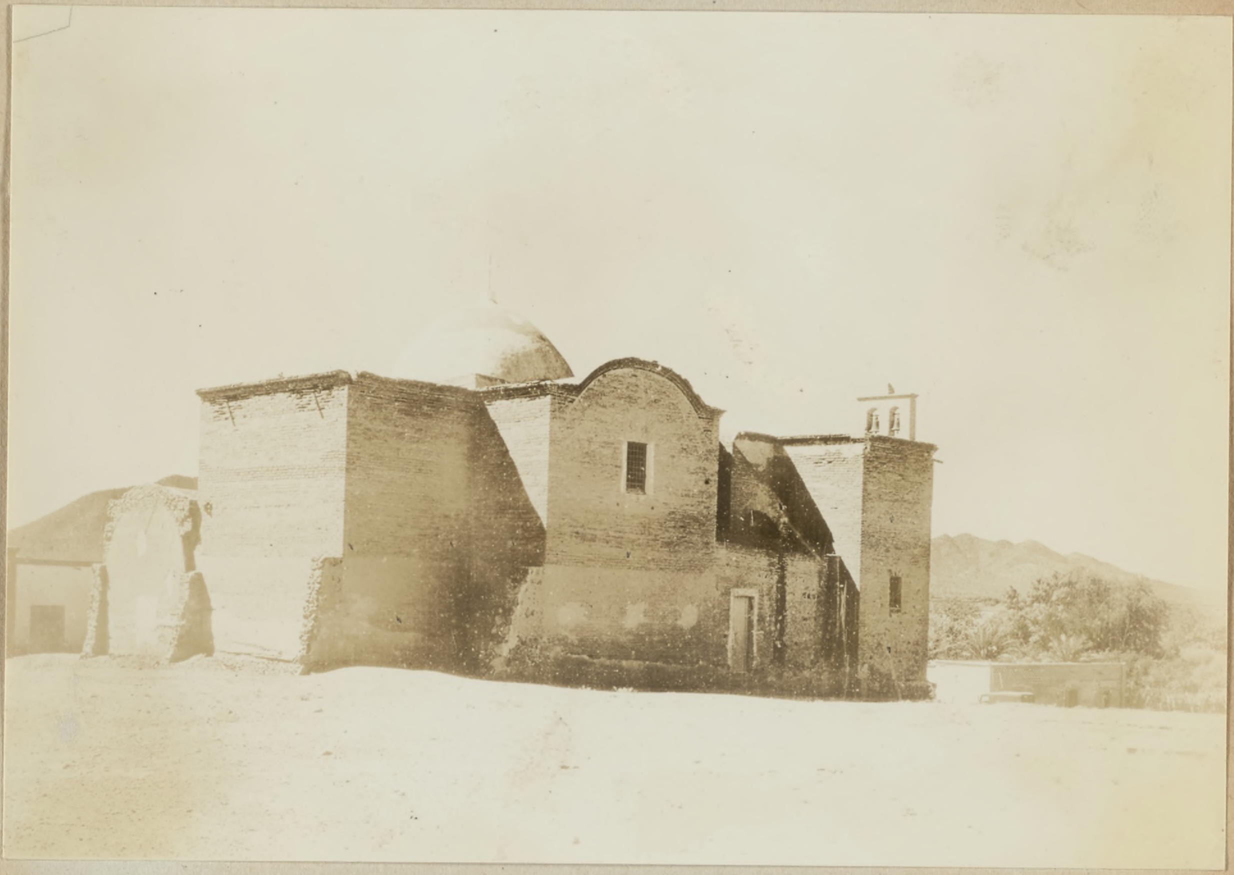
2727 Pitiquito. Looking toward Sanctuary.



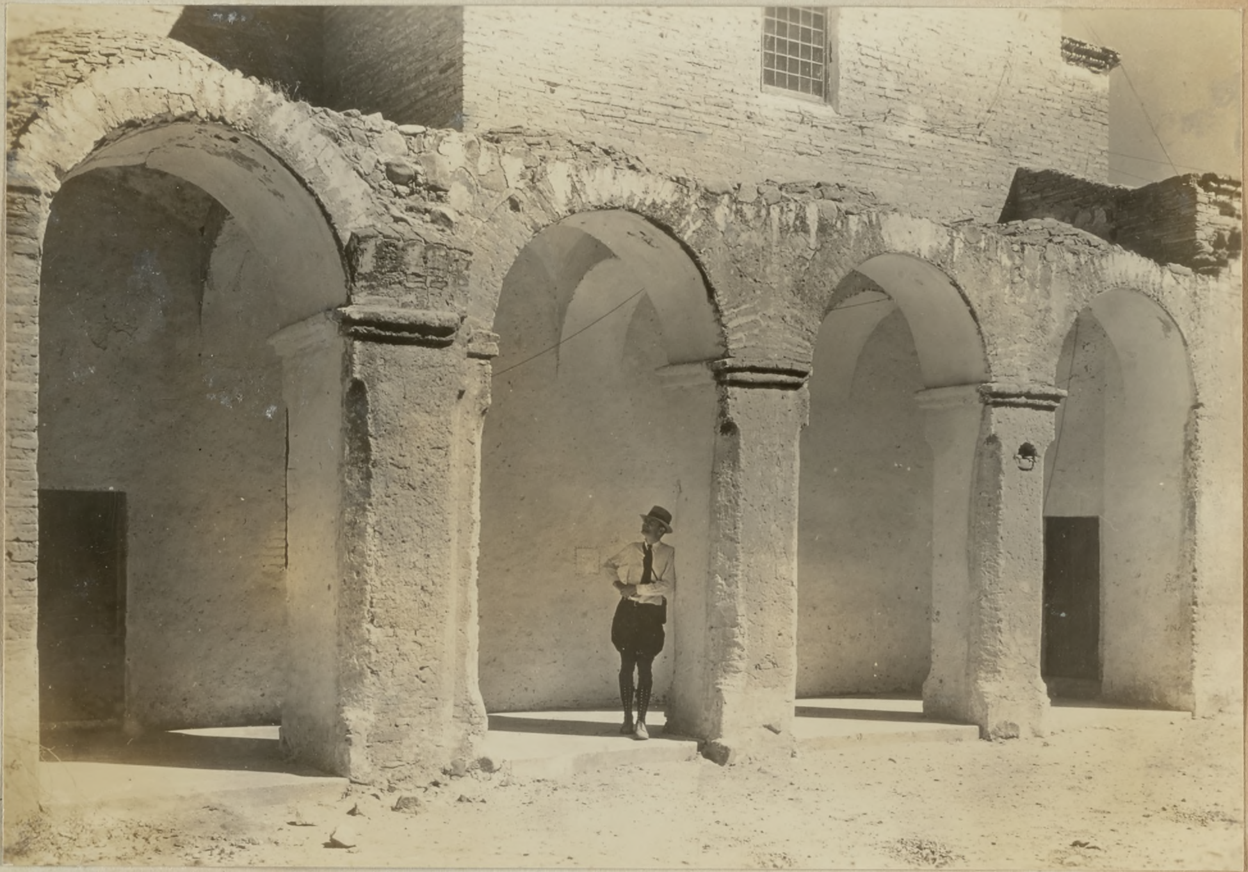
2740 Pitiquito. View of Church from
the Southeast, showing ruins of Cloisters.



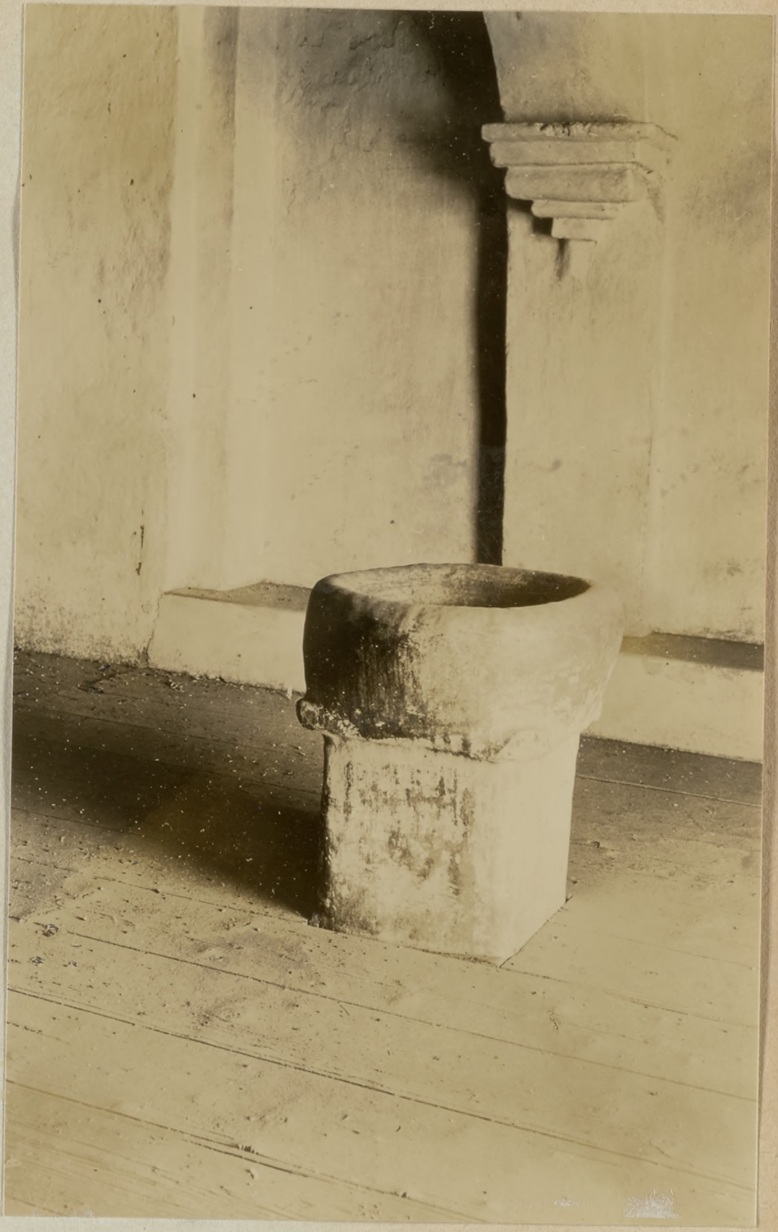
2741 Pitiquito. Cloister and door of Sacristy.



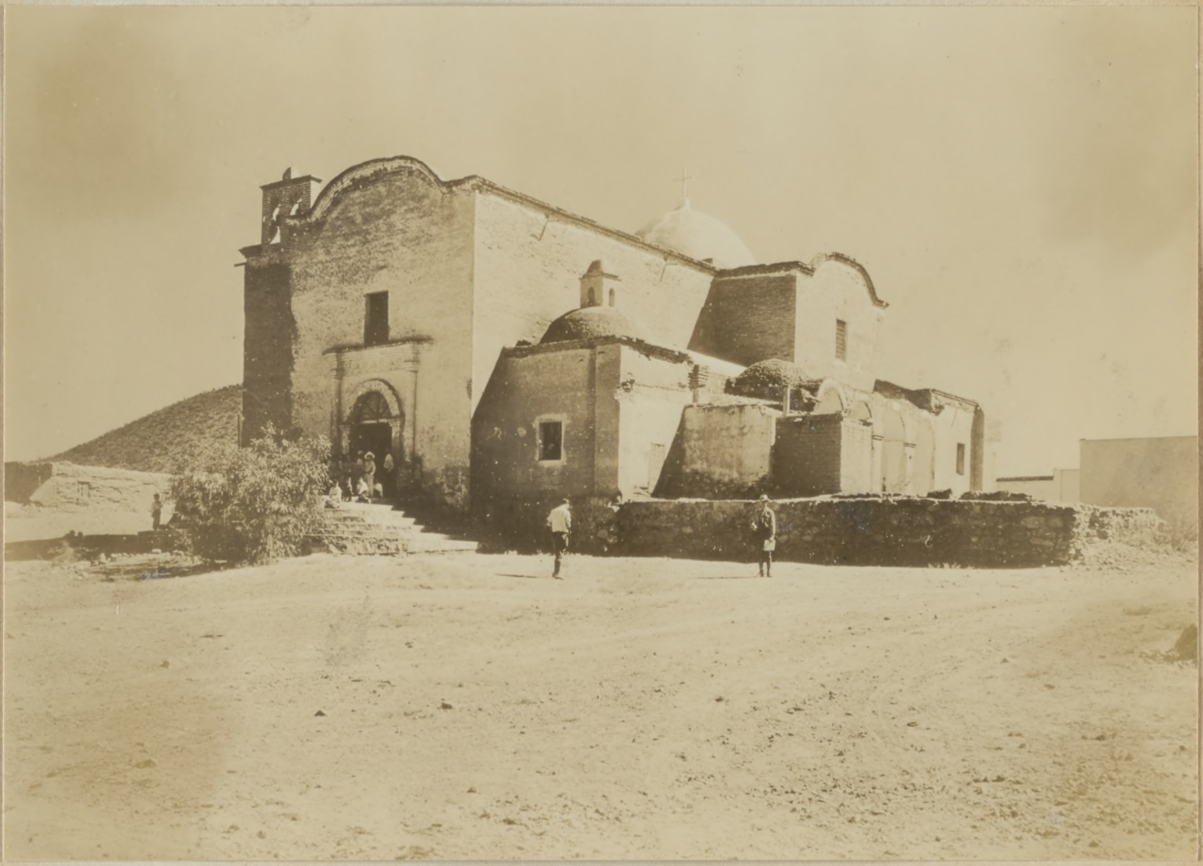
2644 San Diego del Pitiquito.
View of Church from the Northwest.



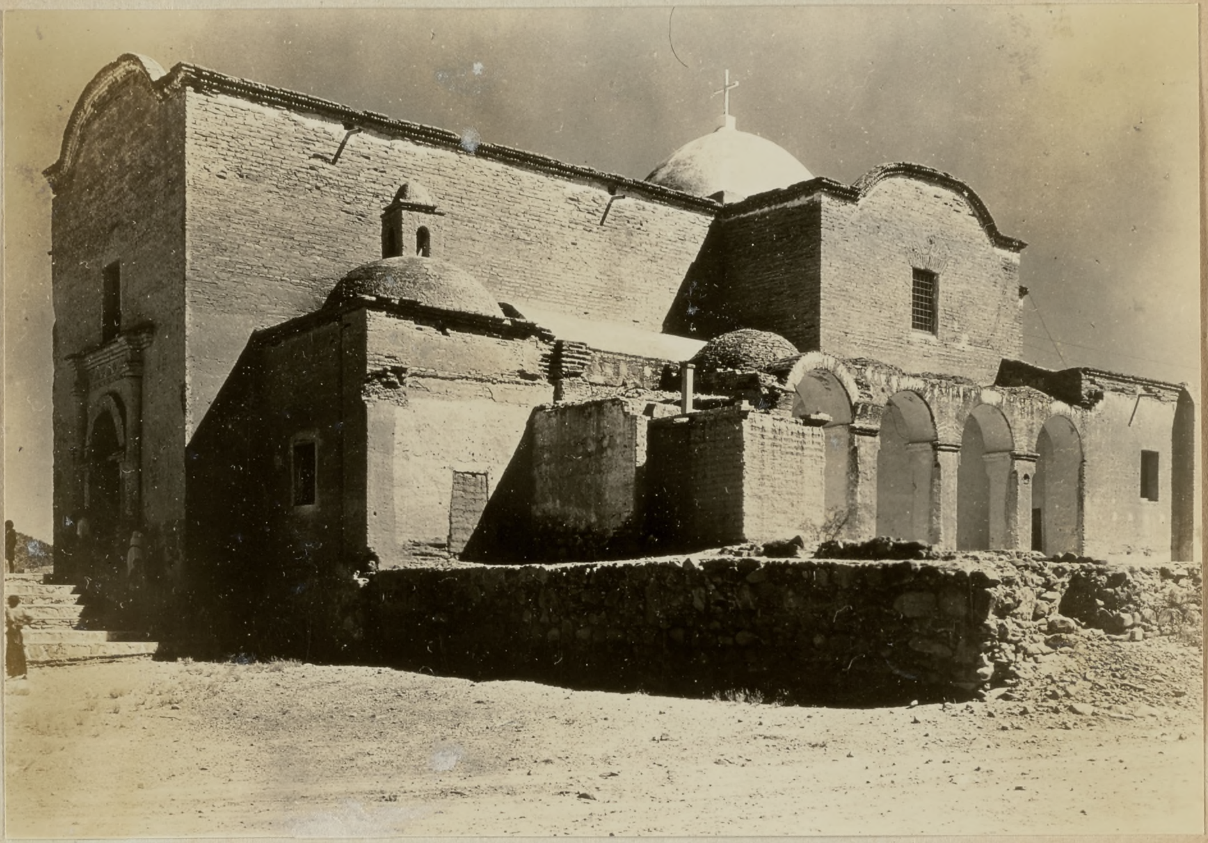
2822 Pitiquito. View of
Cloisters from the Southwest.



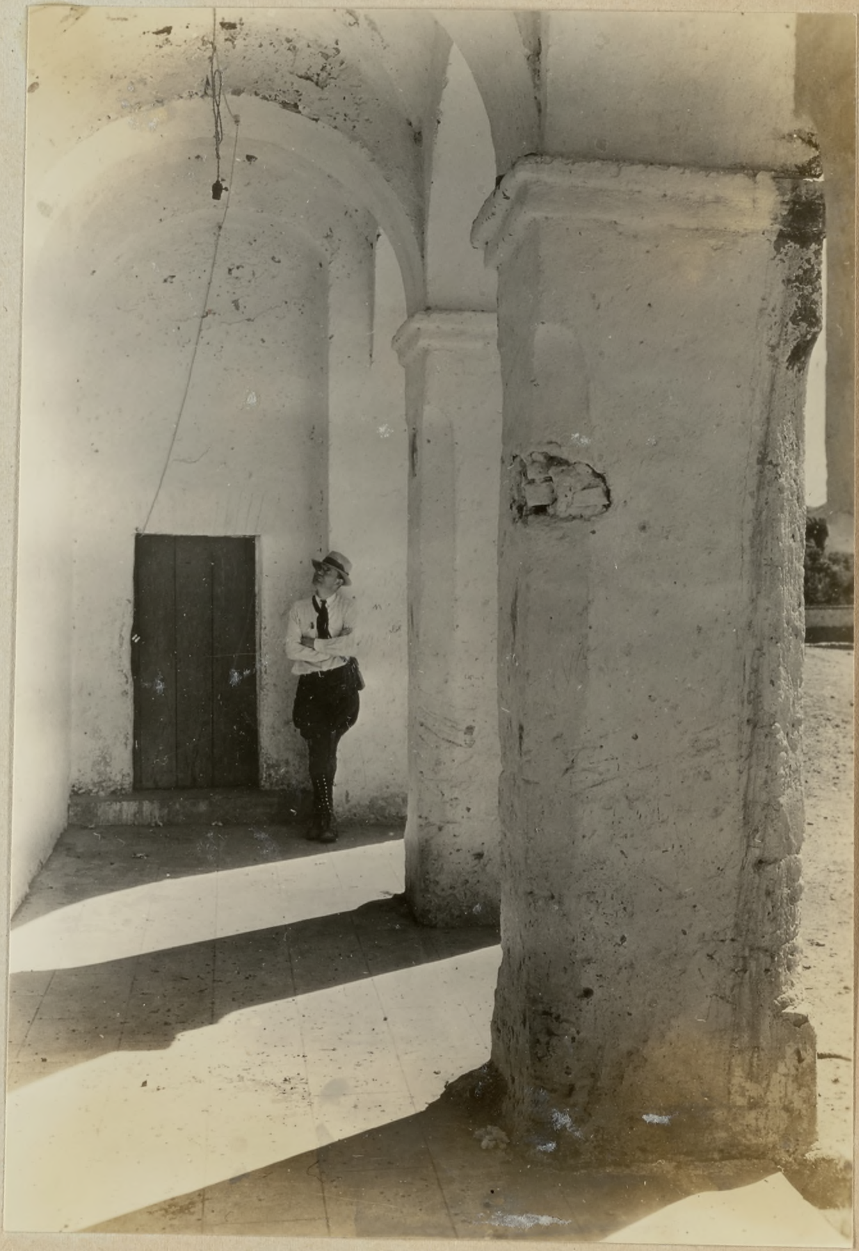
2750 Pitiquito.
Baptistry Fountain.



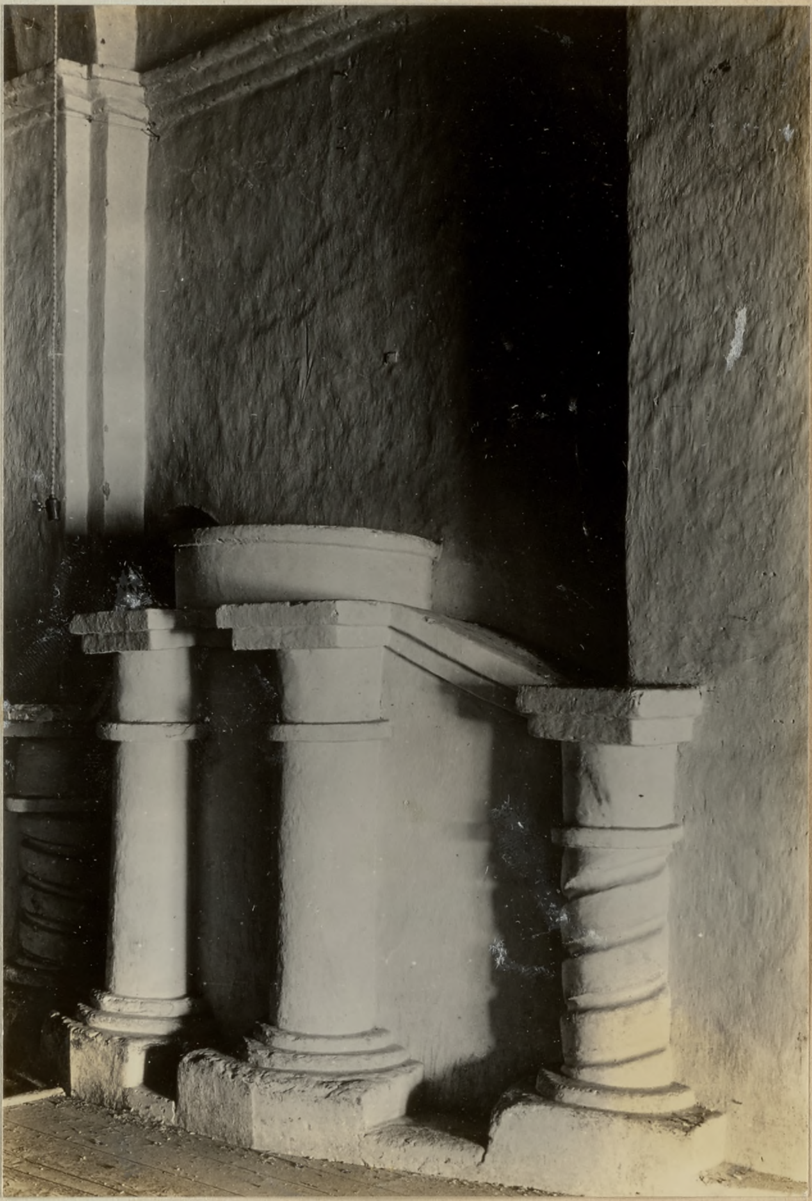
2751 Pitiquito. View
of building.



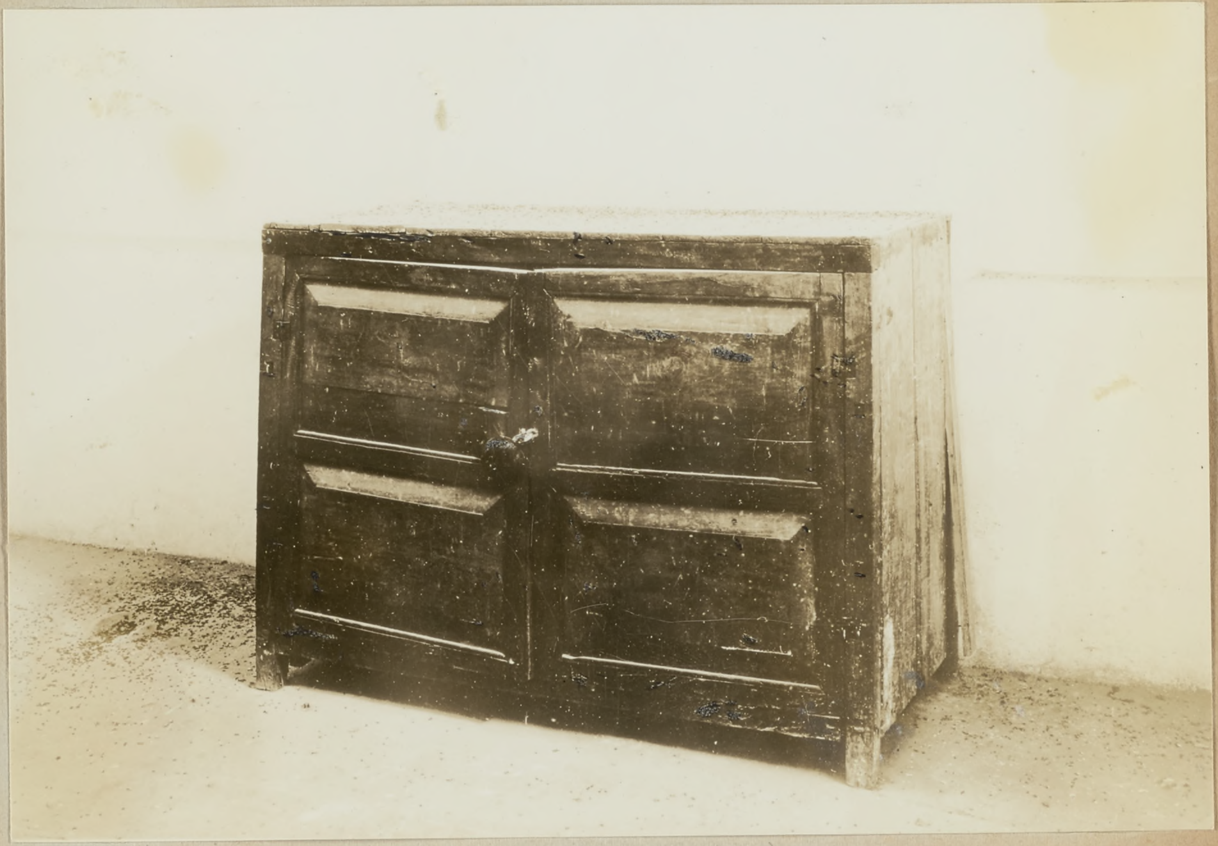
2777 Pitiquito. View from the Northwest.



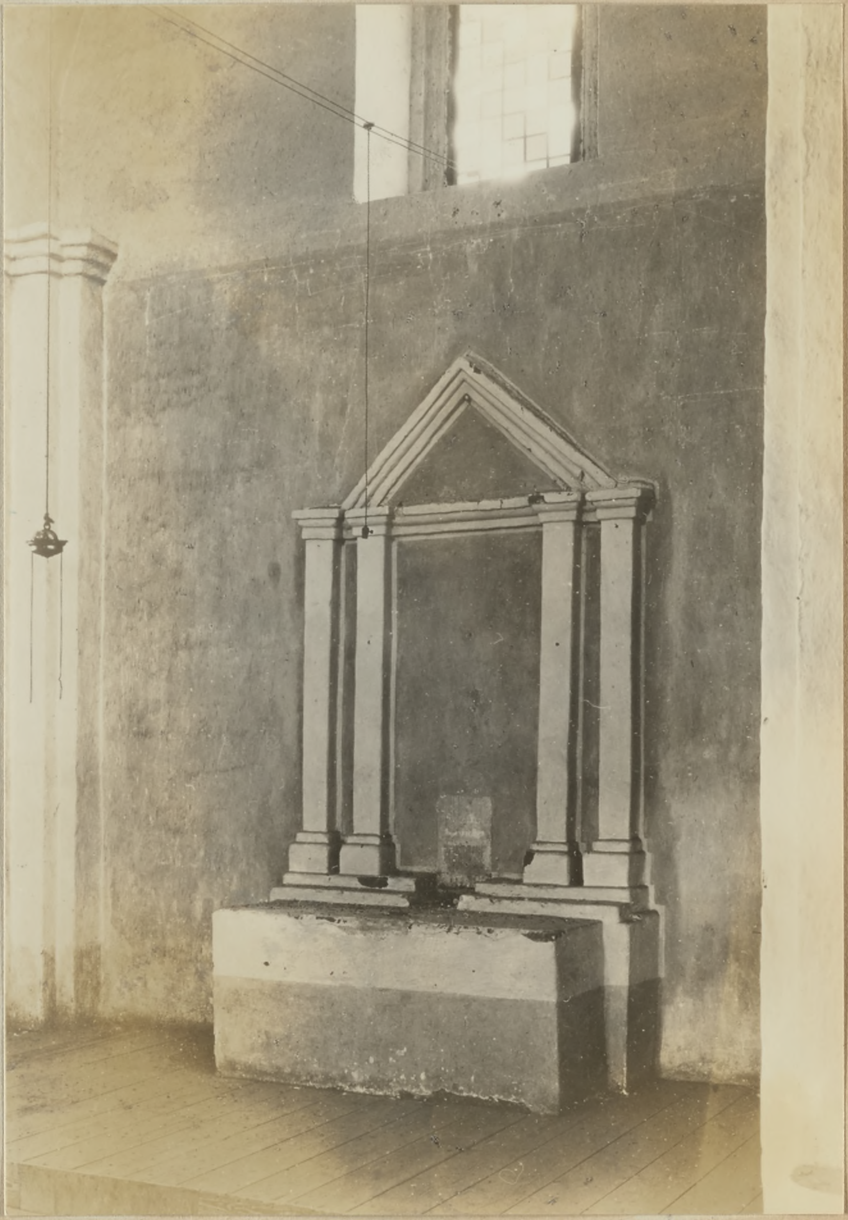
2752 Pitiquito. Cloister and door of Sacristy.



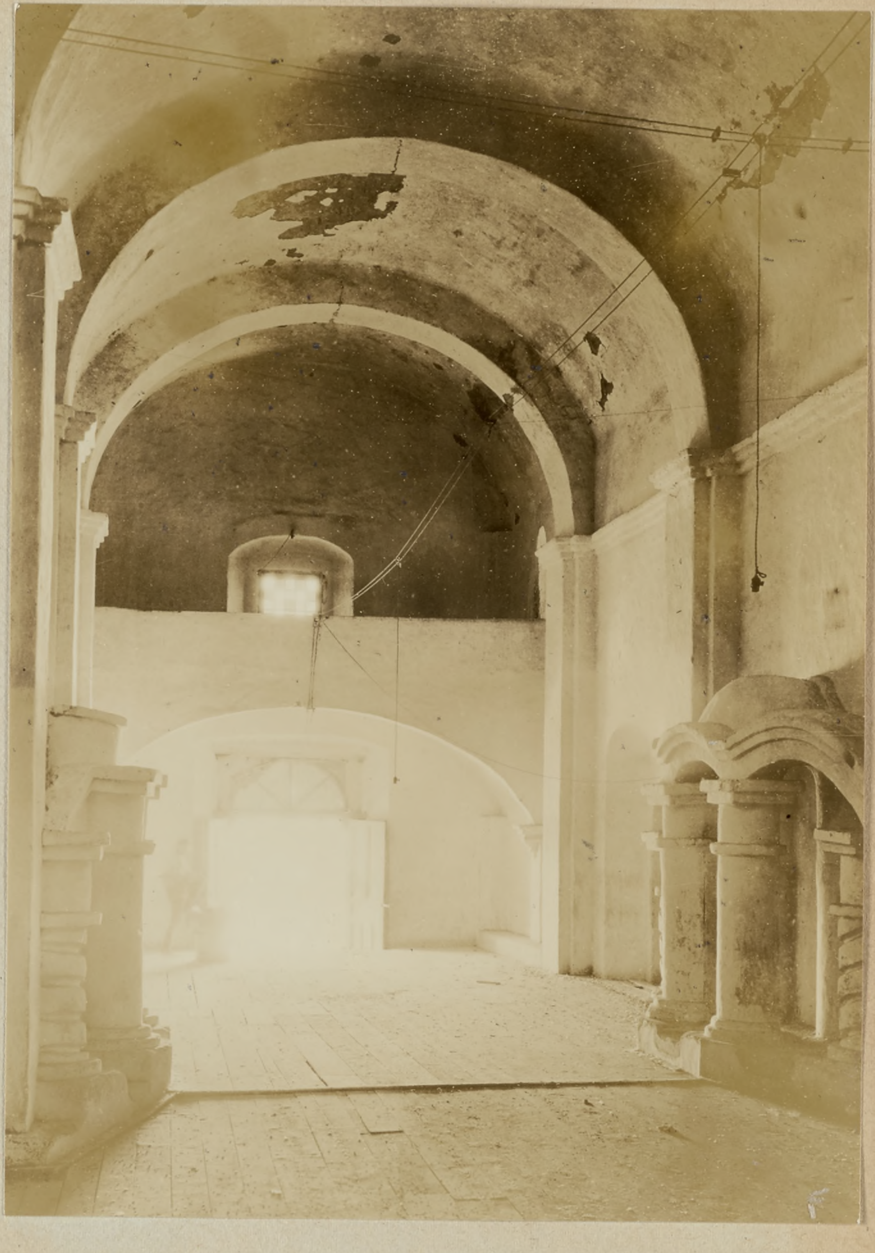
2757 Pitiquito. View of
Pulpit from the Northwest.



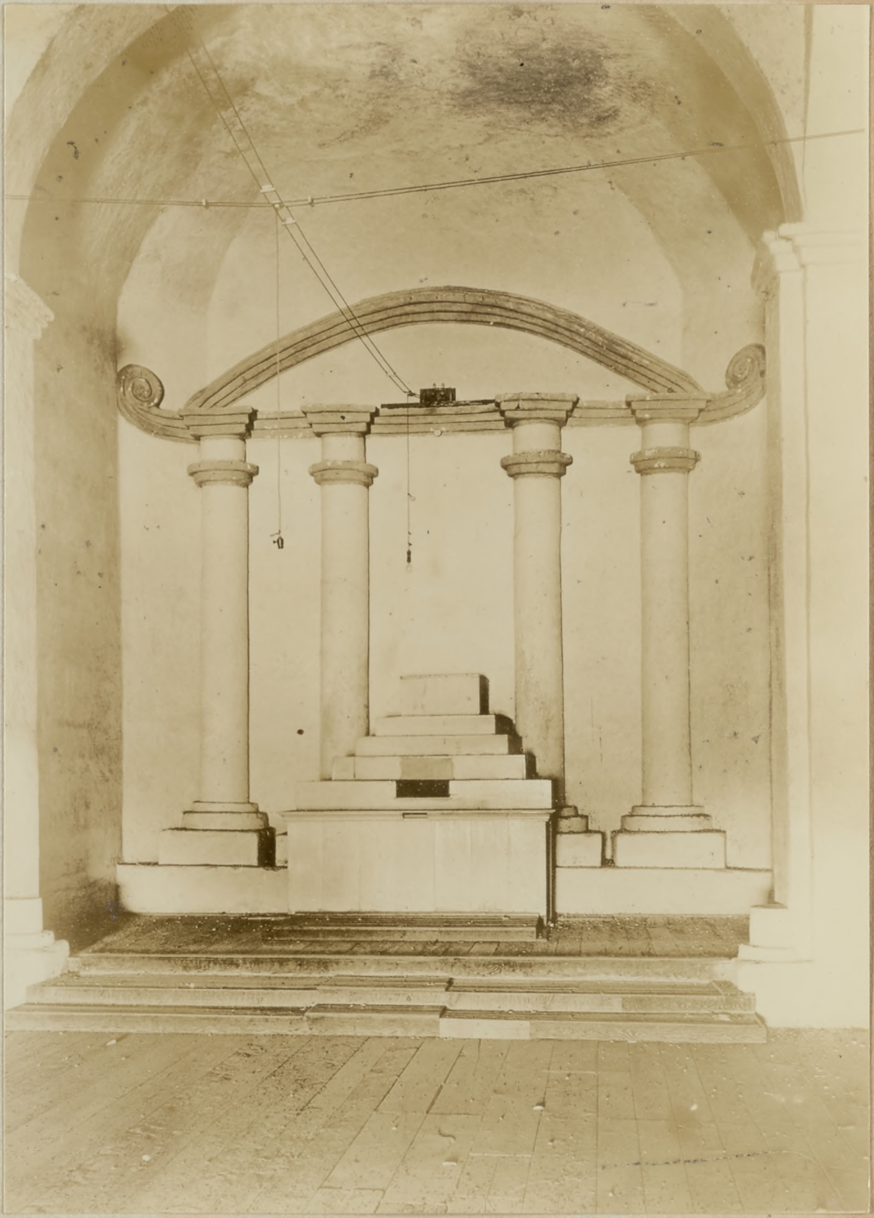
2758 Pitiquito.
Chest of Drawers.



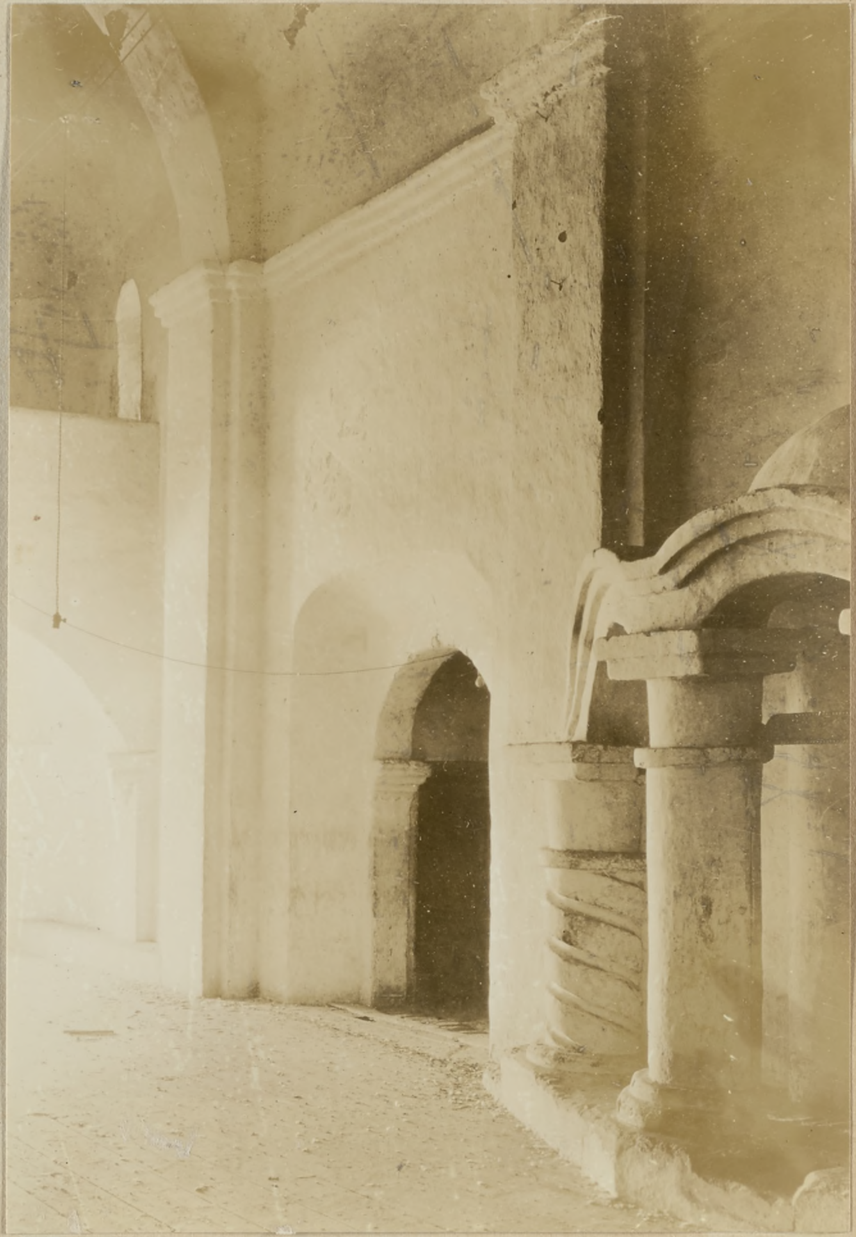
2819 Pitiquito. View of Altar in Transept.



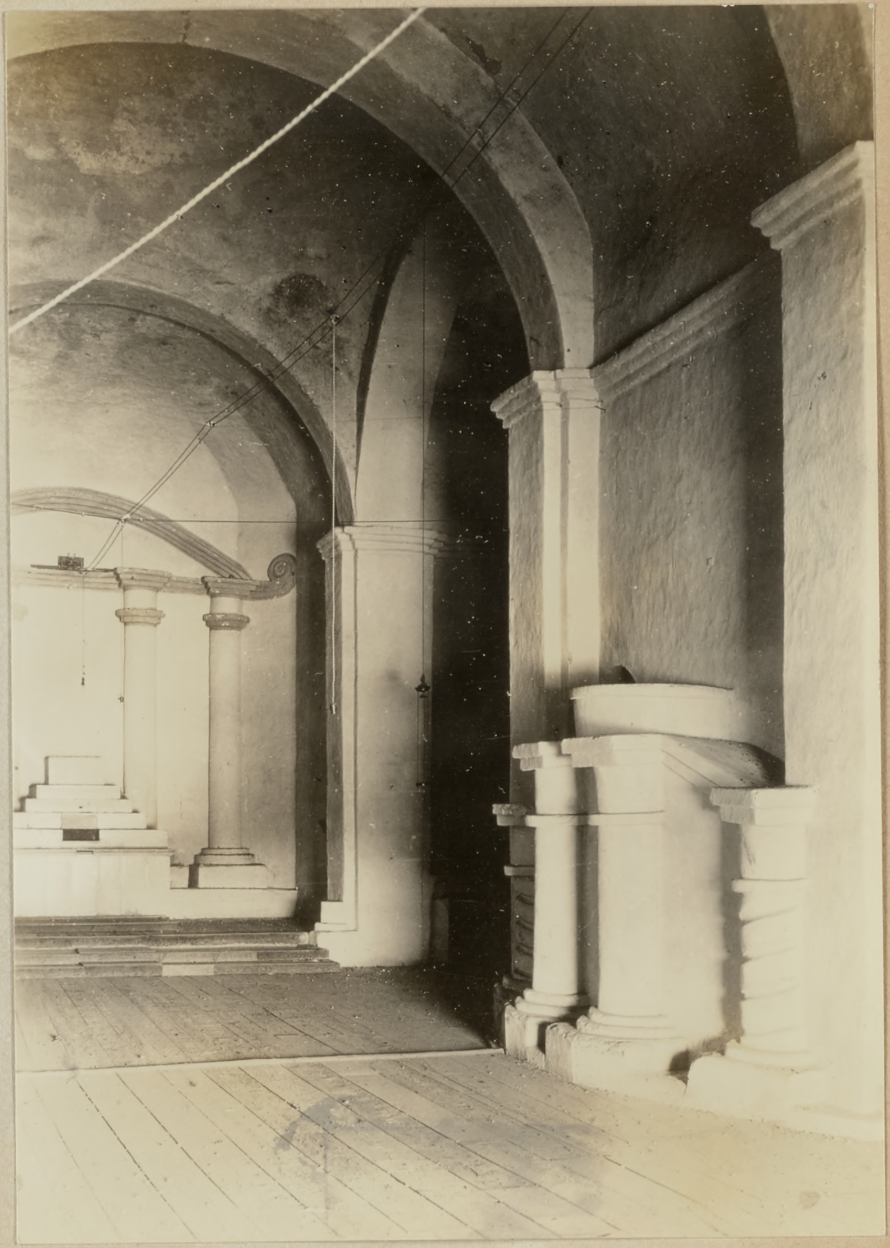
2823 Pitiquito. Choir loft from the West.



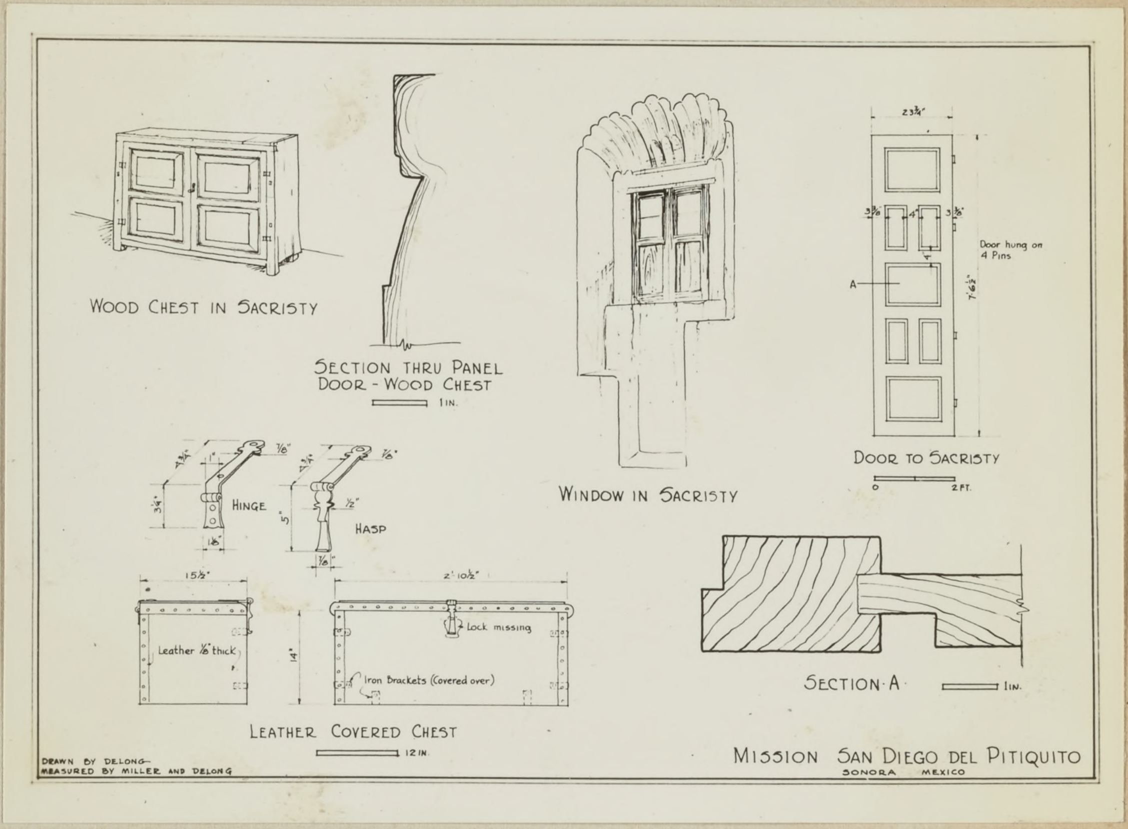
2824 Pitiquito. View of
High Altar from the West.

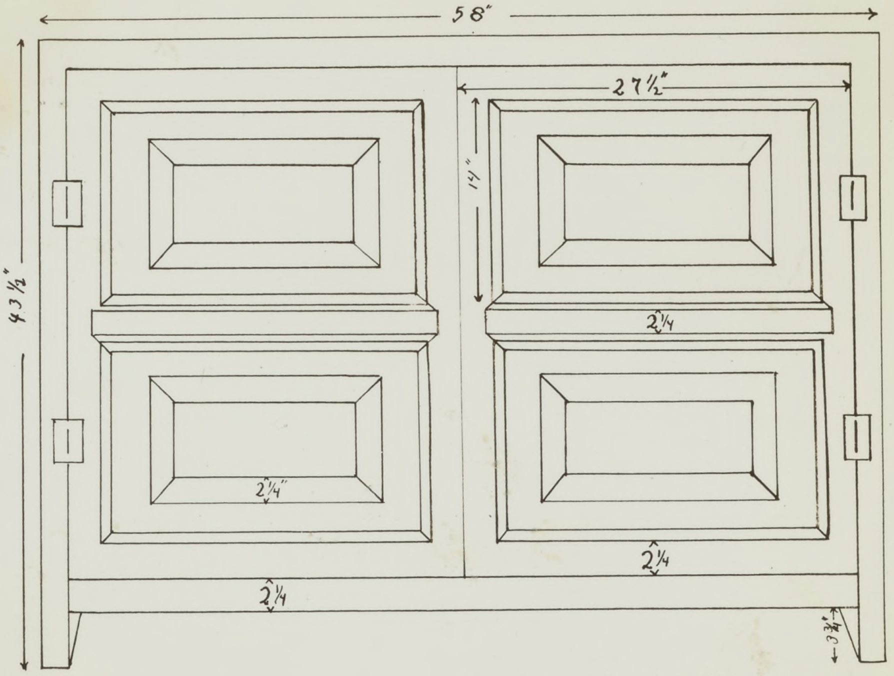


2827 Pitiquito. Cloister and door of Sacristy.

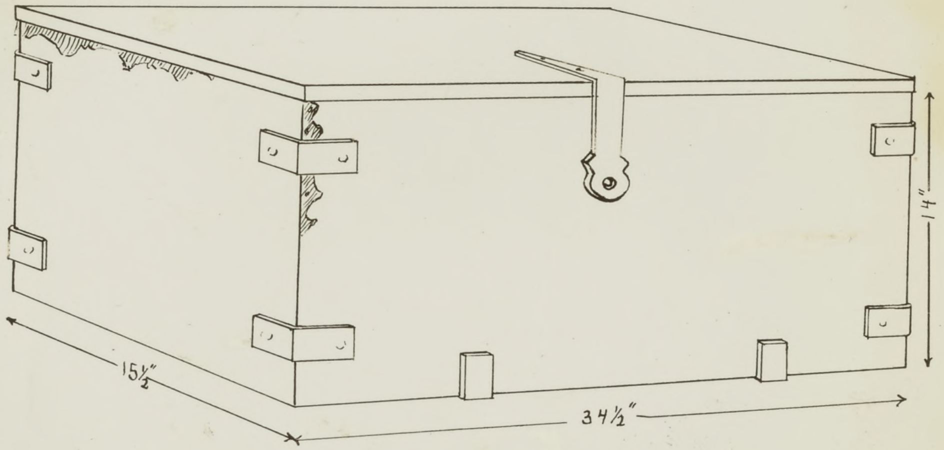


2726 Pitiquito. View of North wall of Nave and Sanctuary.


Wood Chest in Sacristy
Section thru Panel Door - Wood Chest
1 in.
Window in Sacristy
23¾"
3⅜"
4"
3⅜"
4"
A
7'-6½"
Door hung on 4 Pins
Door to Sacristy
0
2 ft.
4¾"
1"
⅞"
3¼"
1⅛"
Hinge
4¾"
⅞"
½"
5"
⅞"
Hasp
15½"
Leather ⅛" thick
14"
2'-10½"
Lock missing
Iron Brackets (Covered over)
Leather Covered Chest
12 in.
Section A
1 in.
Drawn by DeLong
Measured by Miller and DeLong
Mission San Diego del Pitiquito
Sonora Mexico



Cupboard at Pitiquito
in Sacristy
scale ⅛"=1"



Wooden chest in Pitiquito
formerly covered with black leather

SAN FRANCISCO DEL ATIL

SAN FRANCISCO de ATIL

CONDITION OF CHURCH: Ruined walls still stand approximately 15 feet high.

WALLS: Adobe bricks with burned brick facing.

ROOF: Totally destroyed but undoubtedly wood beams spanned the Nave with cane or saguaro ribs placed over these and covered with grass and finished with an adobe mud roof.

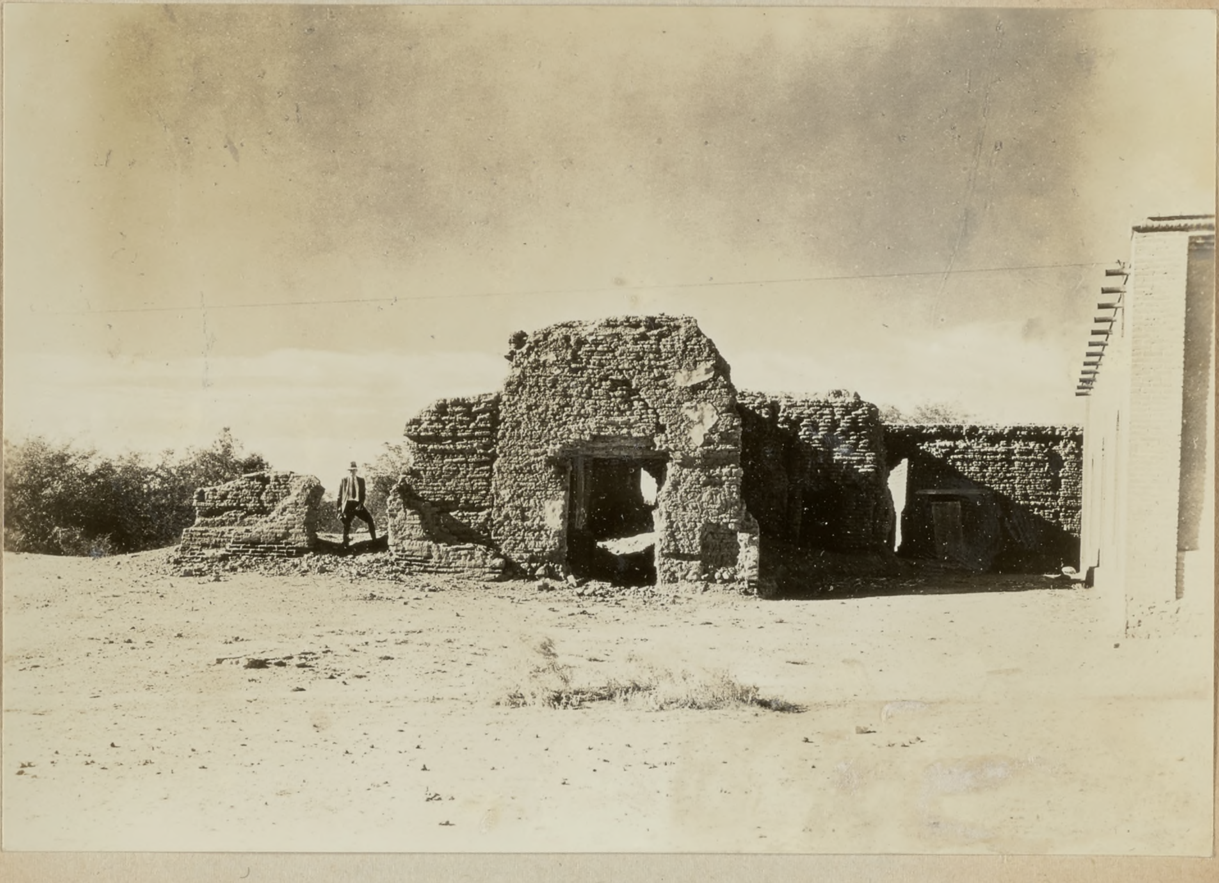
EXTERIOR: Finish - plaster over burned brick and adobe.

INTERIOR: 1/2 inch mud plaster on adobe, whitewashed. In Sanctuary - tile pattern marked off in plaster with painted decorations of Indian Red.

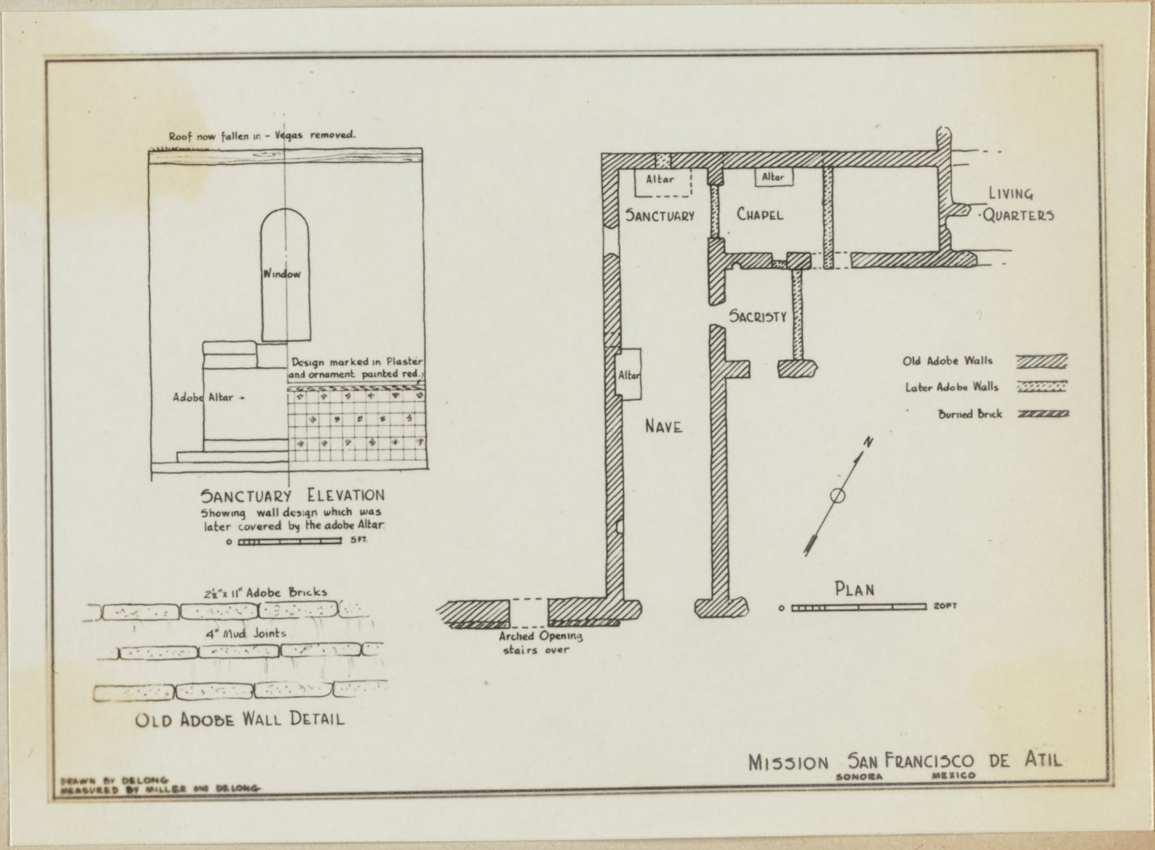
STAIRS: Brick stair to roof adjoining west wall at front of church.

BELFRY: Wall belfry of brick over entrance - now destroyed.

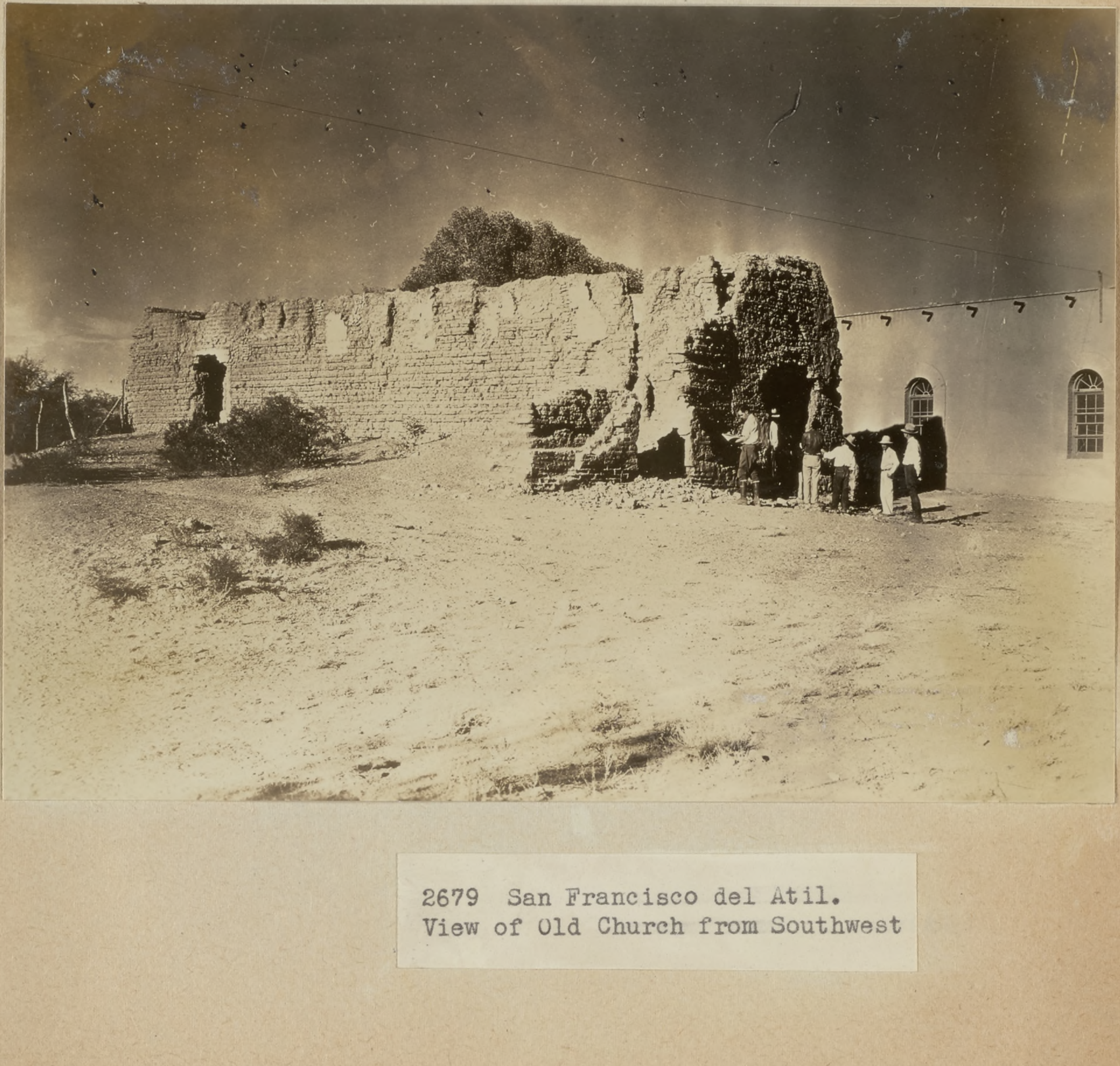
OUTLYING BUILDINGS: Ruined living quarters of adobe stand in line adjoining rear east wall of church.



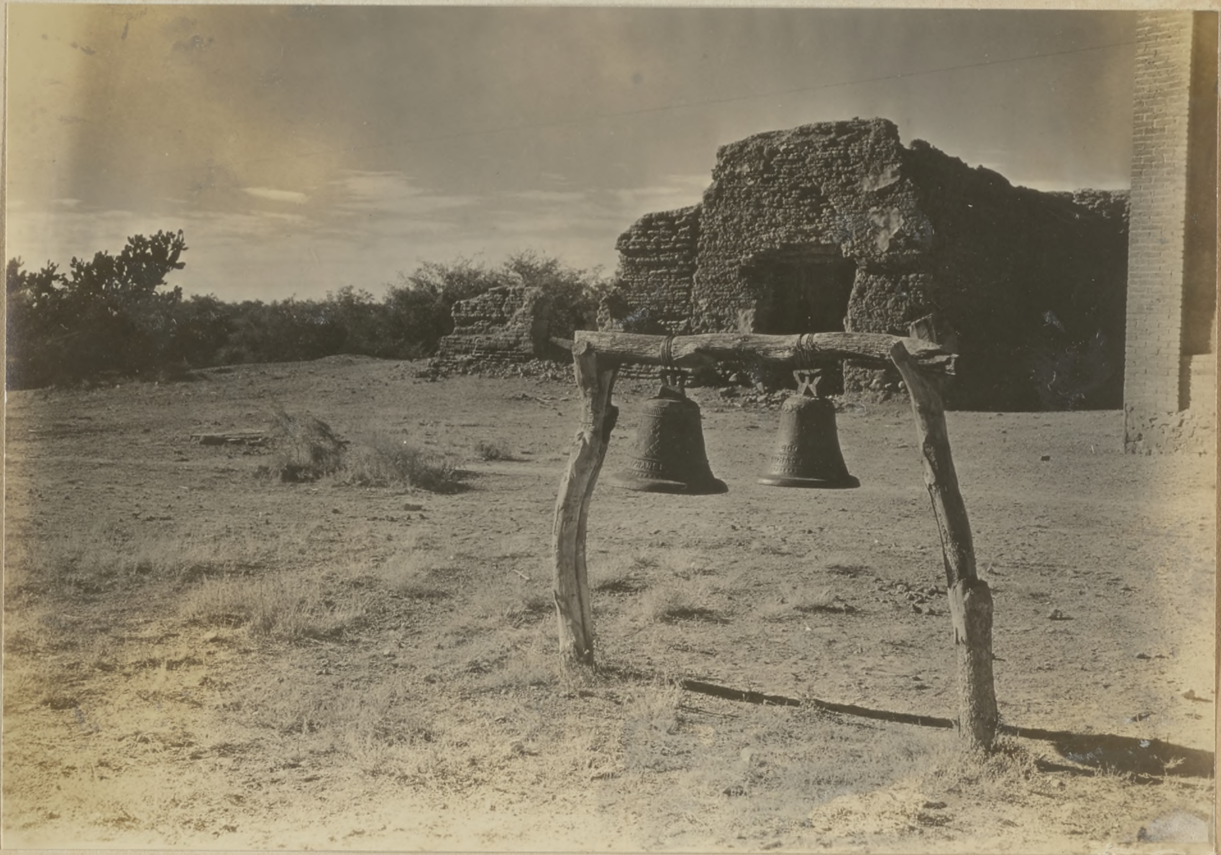
2617 San Francisco del Atil
View of Old Church from South.



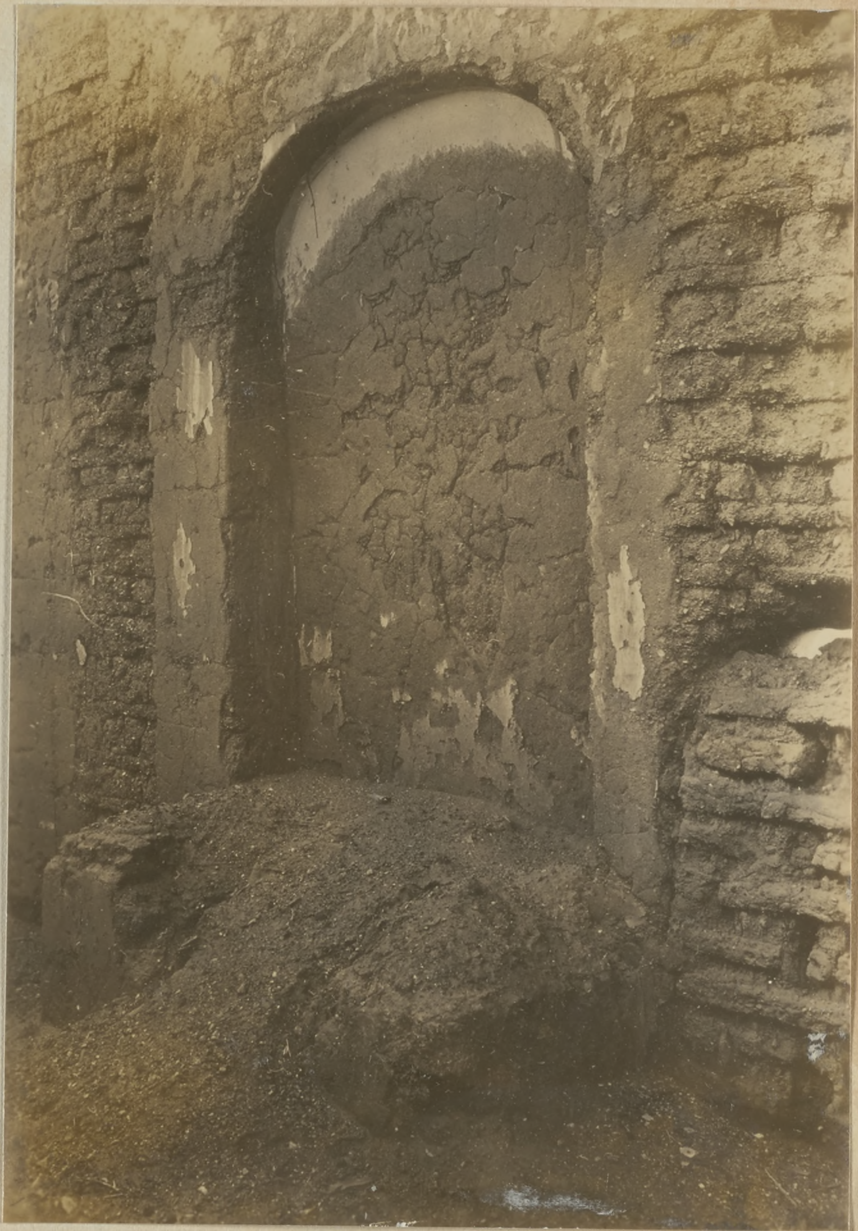
MISSION SAN FRANCISCO DE ATIL
SONORA MEXICO



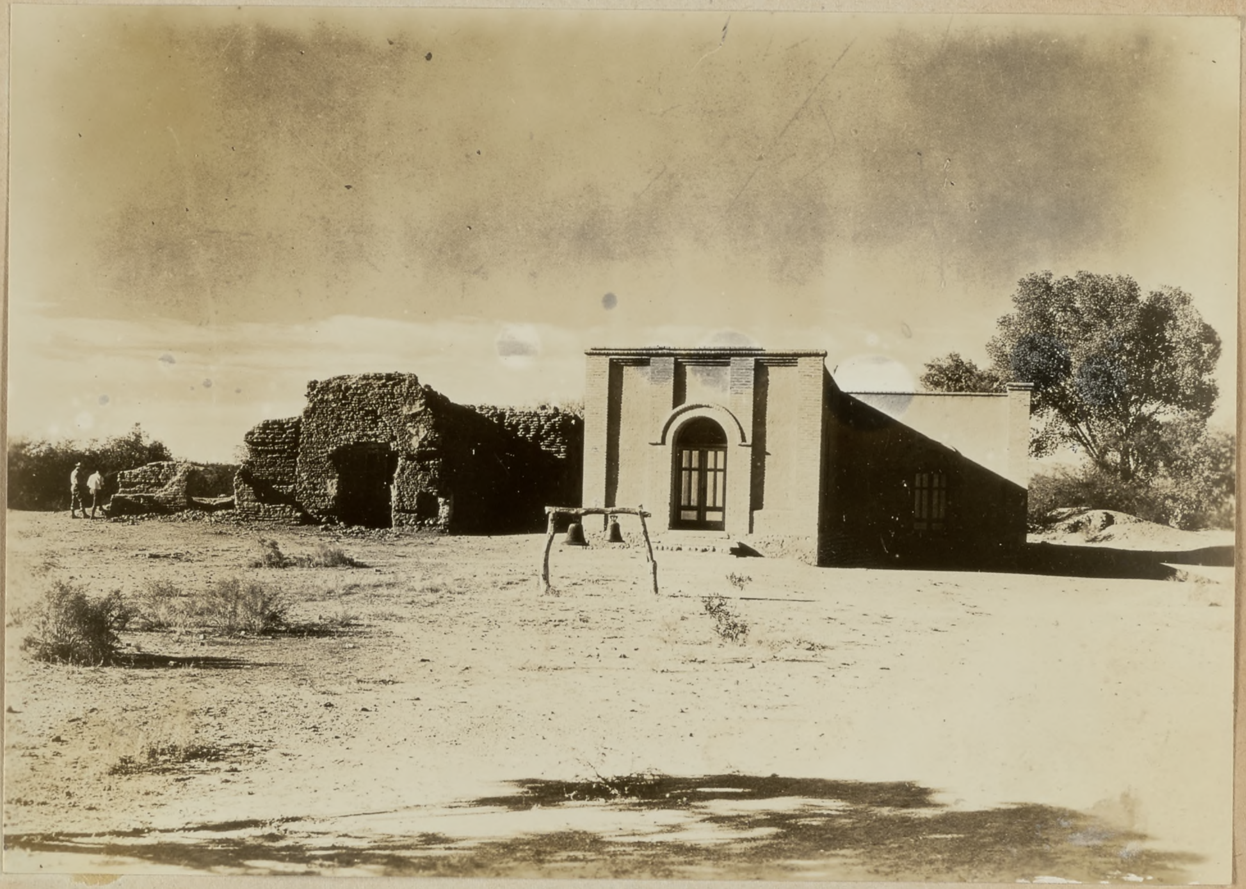
2679 San Francisco del Atil.
View of Old Church from Southwest



2652 San Francisco del Atil.
View of Church and Original Bells
from the Southeast.



2657 San Francisco del Atil.
Ruins of High Altar in Old
Church from the Southeast.



2695 San Francisco del Atil
Old and New Churches from the
Southeast and Original Bells.

SAN GABRIEL DE GUEVAVI

GUEVAVI

CONDITION OF CHURCH: Ruined walls parts of which are standing from 5 feet to 12 feet high.

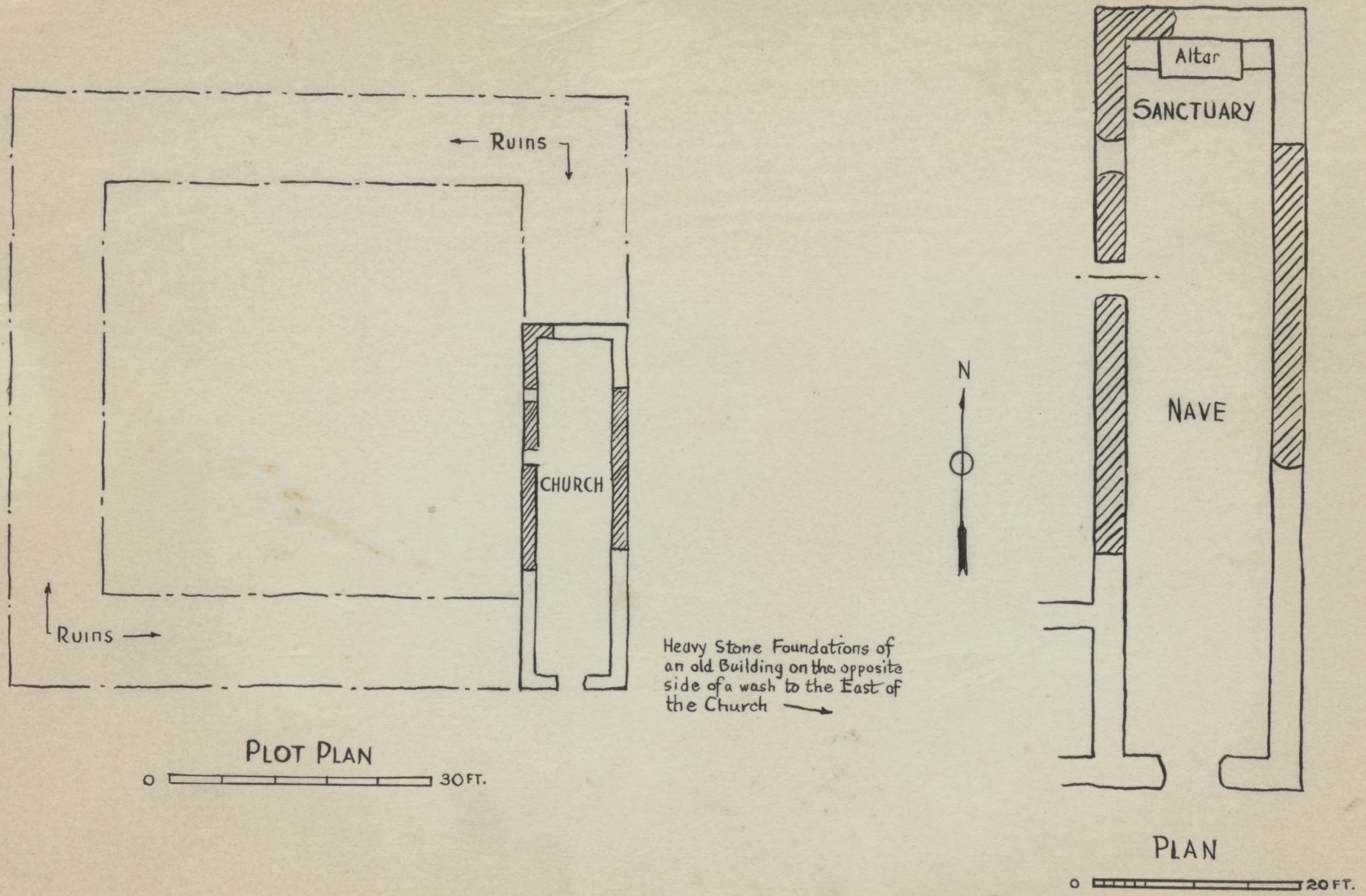
FOUNDATIONS: Stone.

WALLS: Adobe bricks 4 inches thick with 3 inch mud joints.

ROOF: Destroyed but probably the typical early mission type constructed of wood beams spanning the Nave and covered by small poles, grass and mud.

INTERIOR: Thin mud plaster, whitewashed, light red color decoration remaining in a few places.

OUTLYING BUILDINGS: Stone foundations of a building to the east across a dry wash are traceable. Mounded ruins form an enclosed area to the west of the church.



PLOT PLAN

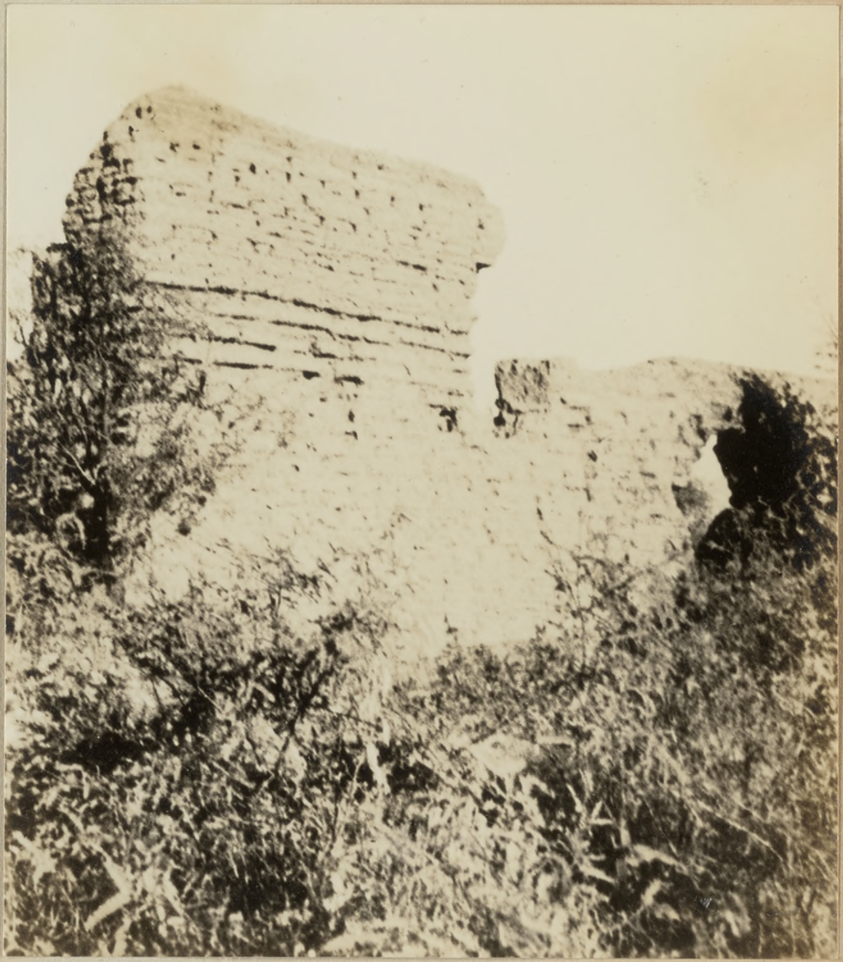
Heavy Stone Foundations of an old Building on the opposite side of a wash to the East of the Church →

PLAN

AFTER DRAWING BY DE LONG
MEASURED BY MILLER AND DE LONG

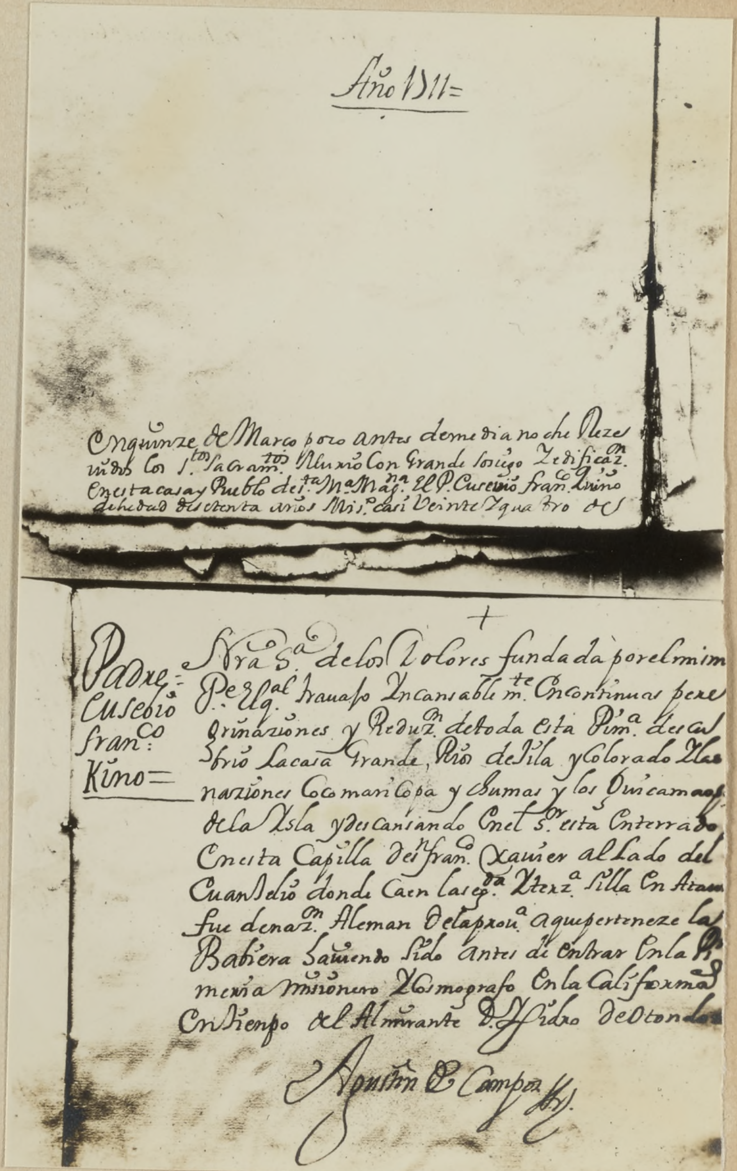
MISSION GUEVAVI
ARIZONA

A.O.



3970 Guevavi. Adobe Walls in Arizona mark a link in the Kino Chain.

NUESTRA SENORA DE LOS DOLORES



Año 1711=

En quinze de Marco poco antes de media noche Reze
vidos los S.tos Sacram.tos Murio Con Grande sosiego Y edificaz.on
En esta casa y Pueblo de S.ta M.a Mag.na El P. Eusevio fran.co Quino
de hedad de setenta años Mis.o casi Veinte y quatro de S

+

Padre Eusebio fran.co Kino=

Nra S.a de los Dolores fundada por el mism
o P.e Yg.al travajo Yncansable m.te En continuas pere
grinaziones y Reduz.on de toda esta Pim.a descu
brio La casa Grande, Rios de Gila y Colorado Y las
naziones Cocomaricopa y Yumas y los Quicamaos
de la Ysla y descansando En el S.or esta Enterrado
En esta Capilla de S.n Fran.co Xavier al Lado del
Evangelio donde Caen la seg.da Y terz.a Silla En Atam
fue de naz.on Aleman de la prov.a a que perteneze la
Babiera haviendo sido antes de Entrar En la Pi
meria misionero Y Cosmografo En la California
En tiempo del Almirante D. Ysidro de Otondo

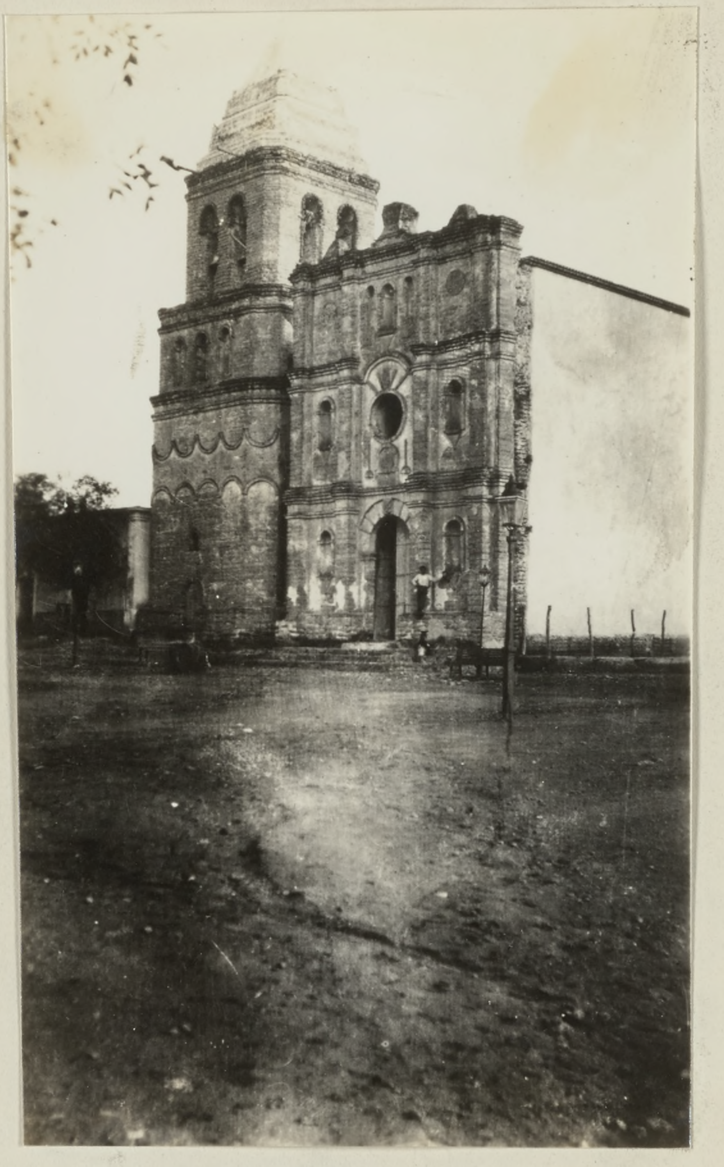
Agustin de Campos

Magdalena

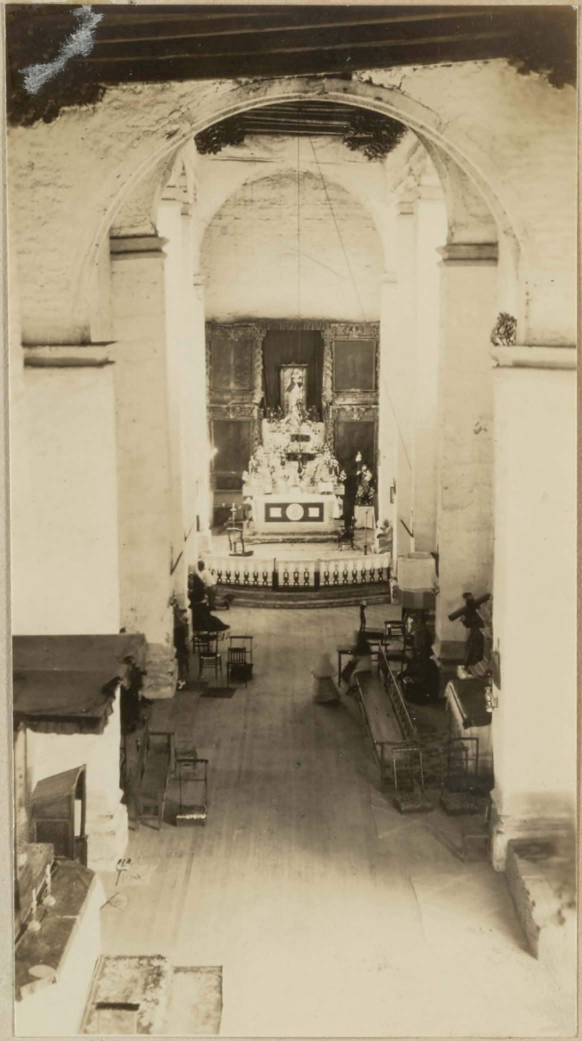
3242 ~~Dolores~~. Historical Documents. Record of Kino's Burial.

Bancroft Library

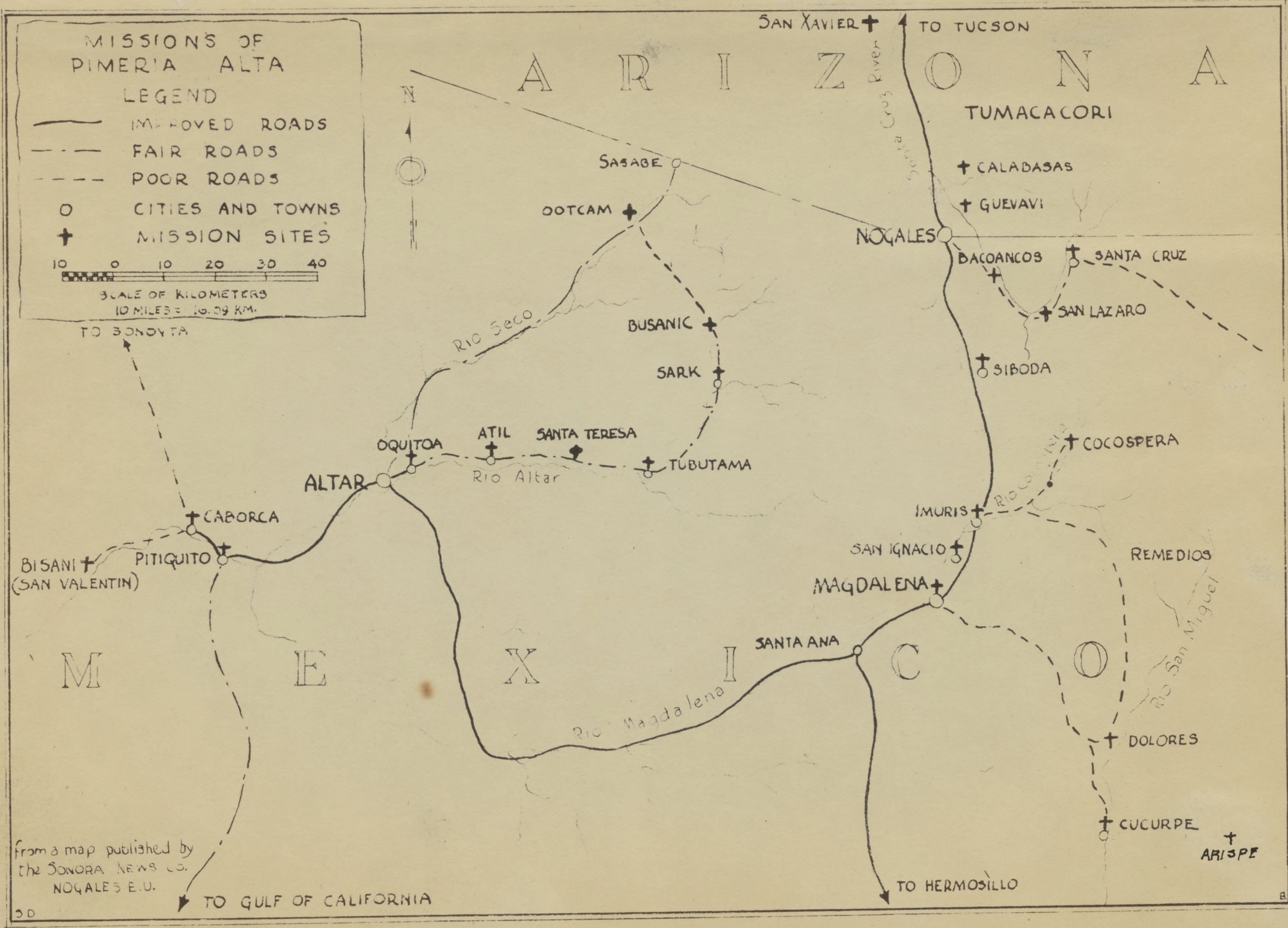
ARISPE



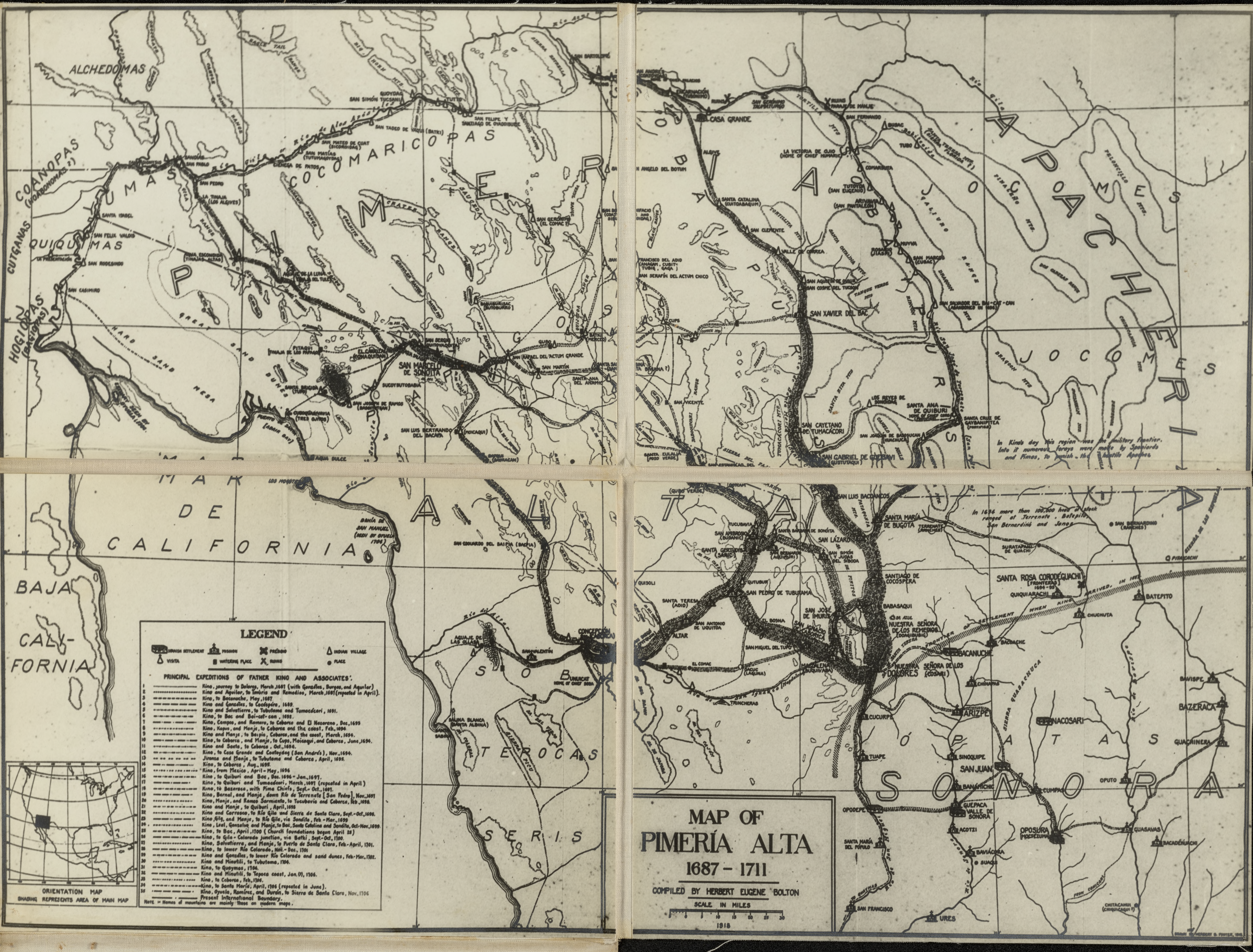
5419 ARISPE



5420 Arispe. The Nave of the Church showing high altar in background.



from a map published by
the SONORA NEWS CO.
NOGALES E.U.


MAP OF
PIMERÍA ALTA
1687 - 1711
COMPILED BY HERBERT EUGENE BOLTON
SCALE IN MILES
1918
LEGEND
SPANISH SETTLEMENT
MISSION
PRESIDIO
INDIAN VILLAGE
VISITA
WATERING PLACE
RUINS
PLACE
PRINCIPAL EXPEDITIONS OF FATHER KINO AND ASSOCIATES.
1 Kino, journey to Dolores, March, 1687 (with González, Burgos, and Aguilar)
2 Kino and Aguilar, to Imúris and Remedios, March, 1687 (repeated in April).
3 Kino, to Bacanuche, May, 1687
4 Kino and González, to Cocóspera, 1689.
5 Kino and Salvatierra, to Tubutama and Tumacácori, 1691.
6 Kino, to Bac and Bai-cat-can, 1692.
7 Kino, Campos, and Romero, to Caborca and El Nazareno, Dec., 1693
8 Kino, Kapus, and Manje, to Caborca and the coast, Feb., 1694
9 Kino and Manje, to Baipia, Caborca, and the coast, March, 1694.
10 Kino, to Caborca, and Manje, to Cups, Moicaqui, and Caborca, June, 1694.
11 Kino and Saeta, to Caborca, Oct., 1694.
12 Kino, to Casa Grande and Coatoydag (San Andrés), Nov., 1694.
13 Jironza and Manje, to Tubutama and Caborca, April, 1695.
14 Kino, to Caborca, Aug., 1695.
15 Kino, from Mexico, April - May, 1696
16 Kino, to Quiburi and Bac, Dec. 1696 - Jan., 1697.
17 Kino, to Quiburi and Tumacácori, March, 1697 (repeated in April)
18 Kino, to Bazeraca, with Pima Chiefs, Sept.- Oct., 1697.
19 Kino, Bernal, and Manje, down Río de Terrenate [San Pedro], Nov., 1697
20 Kino, Manje, and Ramos Sarmiento, to Tucubavia and Caborca, Feb., 1698.
21 Kino and Manje, to Quiburi, April, 1698
22 Kino and Carrasco, to Río Gila and Sierra de Santa Clara, Sept.-Oct., 1698.
23 Kino, Gilg, and Manje, to Río Gila, via Sonóita, Feb.- Mar., 1699
24 Kino, Leal, Gonzalvo, and Manje, to Bac, Santa Catalina and Sonóita, Oct.-Nov., 1699.
25 Kino, to Bac, April, 1700 (Church foundations begun April 28)
26 Kino, to Gila - Colorado junction, via Batki, Sept.-Oct., 1700.
27 Kino, Salvatierra, and Manje, to Puerto de Santa Clara, Feb.-April, 1701.
28 Kino, to lower Río Colorado, Nov.- Dec., 1701
29 Kino and González, to lower Río Colorado and sand dunes, Feb.-Mar., 1702.
30 Kino and Minutili, to Tubutama, 1704.
31 Kino, to Guaymas, 1704.
32 Kino and Minutili, to Tepoca coast, Jan. (?), 1706.
33 Kino, to Caborca, Feb., 1706.
34 Kino, to Santa María, April, 1706 (repeated in June).
35 Kino, Oyuela, Ramírez, and Durán, to Sierra de Santa Clara, Nov., 1706
Present International Boundary.
NOTE :- Names of mountains are mainly those on modern maps.
ORIENTATION MAP
SHADING REPRESENTS AREA OF MAIN MAP
PIMERÍA ALTA
SONORA
APACHERIA
MAR DE CALIFORNIA
BAJA CALI-FORNIA
PAPAGOS
SOBAIPURIS
COCOMARICOPAS
YUMAS
QUIQUIMAS
OPATAS
JOCOMES
TEPOCAS
SERIS
ALCHEDOMAS
COANOPAS
CUTGANAS
HOGIOPAS (BAGIOPAS)
In Kino's day this region was the military frontier. Into it numerous forays were made by Spaniards and Pimas, to punish the hostile Apaches.
In 1696 more than 100,000 head of stock ranged at Terrenate, Batepito, San Bernardino and Janos
CASA GRANDE
SAN XAVIER DEL BAC
SAN CAYETANO DE TUMACÁCORI
SAN GABRIEL DE GUEBAVI
NUESTRA SEÑORA DE LOS DOLORES
SAN IGNACIO
CABORCA
TUBUTAMA
SANTA MARÍA DE BUGOTA
SANTA ROSA CORODÉGUACHI
SAN MARCELO DE SONOITA
CONCEPCIÓN
ARIZPE
BACANUCHE
OPOSURA
BAZERACA